

'It's Important to Know In Time'

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Air Conditioning & Refrigeration

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Inside Dope

By George F. Taubeneck

No Surrender Wanted
Cutbacks Gentle
Veterans vs. Labor
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Advertising the Surpluses

No Surrender Wanted

Peace proposals by Japan—beyond the "feelers" already put out—are expected soon, and they may indeed sound attractive to fathers, mothers, and wives of our fighting men who are anxious to see their loved ones home again safe and soon.

There is no predisposition to consider any sort of peace offer in Washington, however. A propaganda campaign is now being readied to counterbalance any publicity the Japs may give to later and better offers than they have been whispering thus far.

Official line is that Japan must be crushed utterly, and that this is the time to do it.

Same situation holds true with Germany. The policy will be to overrun Germany, to show every German citizen that we are the conquerors, to defeat and ruin the Germans beyond question of doubt.

Old General Pershing, who wanted to do that in World War I, is having his way this time. He is visited regularly by General Marshall.

On the whole the American people seem to favor this conquer-crush-and-rule policy now. Our sons will find out whether or not this policy was the correct one.

Cutbacks Gentle

Cutbacks in military procurement probably won't become truly sharp until the last quarter of 1945, unless the Japs commit national hari-kari some bright Tuesday morning. The cuts will come slowly at first.

First contracts to be pared back will be those relating to supplies for Army ground forces. Equipment for the Army Air Forces and for the Navy will roll out in continued high volume for many months to come.

Veterans vs. Labor

There's a terrific fight a-brewing between organized labor and organized war veterans over prior rights to industrial jobs after the war.

All the shouting is over Selective Service's position that:

"A returning veteran is entitled to reinstatement in his former position or one of like seniority, status, and pay even though such reinstatement necessitates the discharge of a non-veteran with greater seniority."

This position, which is upheld by the American Legion and other veterans' groups, would give ex-service-men super-seniority.

The C.I.O. and A.F. of L. don't like that a little bit. They want their seniority system maintained, even at the expense of returning fighters.

They contend that re-employment of veterans in union shops should follow the general rules of union seniority systems, and that no veteran should supplant a civilian who has greater seniority.

Watch the fur fly!

Taps for a Hero

H. M. McGaughey, one of Kelvinator's brightest coming young men, died a hero's death in the Philippines.

Mac, as he was known to many of us, was a lieutenant commander in the Navy, and an executive officer of a Liberators squadron. He personally accounted for the sinking of more than 30 Japanese ships, and, when he returned, would have come

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'Freon-12' Now Available For Any Kind of Cooling System

WASHINGTON, D. C.—Restrictions on the delivery and use of "Freon-12" have been dropped by the War Production Board.

The long-expected revision in Order M-28 which would permit sales of this refrigerant for all types of systems, was issued April 2.

Although the order now permits sales of "Freon-12" for comfort cooling installations as defined in List A of Order M-28, WPB provides that precedence on deliveries is to be given to more essential users.

(List A includes residential buildings, banks, schools, offices, bars, amusement places, theaters, studios, etc.)

(Apparently, there is no provision in the amended order setting up a method of determining precedence.)

Dropping of these restrictions does not mean, however, that WPB has given up all control over sales of "Freon-12." Still in force is the requirement that purchasers must certify to the seller and WPB that they do not have any "F-12" cylinders belonging to someone else which have been empty more than 15 days, and that the refrigerant will not be used for purposes other than those permitted under the order.

Adequate supplies of "F-12" gas should continue to be available if the cylinders are returned with reasonable promptness, officials of WPB's General Industrial Equipment Division said. Failure to have empty cylinders returned to the producer could result in the necessity for re-imposing restrictions, they warned.

The amended Order M-28 provides that cylinders for the air conditioning or refrigerating systems must be returned to the supplier as promptly as practicable, unless the cylinders are owned by the person buying the refrigerant. In general, this should be done in less than 30 days from the date a cylinder is received.

Co-ops To Distribute Own Appliance Line

CHICAGO—Co-ops are planning to intensify greatly their activities in the appliance field after the war by distributing their own brands of refrigerators, radios, and other major and small appliances, it was revealed at the recent annual meeting here of National Cooperatives, Inc.

A fund of \$30,000 to \$40,000 has been set up by National Cooperatives to finance design and engineering work for a new refrigerator which will be distributed under the co-op label, it was learned. And a contract has already been signed with a manufacturer to produce the line.

Present plans call for a single model of 8 to 9-cu. ft. capacity with frozen food storage space and extra large ice-making facilities.

Specifications for the co-op's radio line have reached the preliminary stage, and National Cooperatives will soon engage a designer to style radio cabinets, according to Otto A. Nurkalla, who is coordinator of the organization's electrical and appliance division.

Postwar marketing plans of National Cooperatives also include distribution of electric irons, washing machines, vacuum cleaners, electric water heaters, toasters, and other table appliances.

At the Chicago meeting it was reported that National Cooperatives' business with retail co-ops had shown a big increase last year. In 1944 the figure was \$152,523,298, compared with \$124,389,000 in 1943 and \$48,338,000 in 1939.

There was no discussion at the meeting regarding the present important political battle in which attempts are being made to make co-ops' income subject to regular income taxes.

Seeger To Buy Sunbeam Co.

ST. PAUL, Minn.—Seeger Refrigerator Co. here has completed negotiations for the purchase of the Sunbeam Electric Mfg. Co. of Evansville, Ind., manufacturer of household refrigeration units. The purchase is subject to ratification by the board of directors of Sunbeam, which will meet April 16.

Plans for the purchase call for Seeger to take complete control over the Sunbeam firm. W. R. Carson, Sunbeam's president, will resign and take a place on the board of directors. It is contemplated that existing personnel at the Sunbeam plant will be retained.

Under Seeger's control, the Evansville plant will continue to make the unit for the Sears-Roebuck "Coldspot" household electric refrigerator. Seeger has supplied cabinets for the "Coldspot" refrigerator assembly for some time.

Seeger will continue its contract business with other manufacturers of household refrigerators, and will also continue to make its line of commercial refrigerators.

The Sunbeam company has been in business since 1883, Seeger since 1905. Starting out as a manufacturer of oil-burning headlights for locomotives, Sunbeam later turned to electrical products and eventually got into appliance business when it started to manufacture a washing machine.

In 1929 the company purchased the right to the Rotorite rotary refrigeration compressor, which was a development of J. H. Dennedy. Also in 1929 Sears-Roebuck signed its first contract with Sunbeam for the production of units for the Sears refrigerator. Later, the company contracted to make the units for Sears exclusively.

Locker Plants Question OPA Methods In Search For 'Black Market' Meats

DES MOINES, Iowa—Threats of a possible nation-wide food shortage and a further curtailment of meat supplies have prompted officials of the Office of Price Administration to start "spot" investigations of locker plants, creating considerable stir in the industry, chiefly as the result of attendant widespread newspaper publicity, much of which has been unfavorable.

According to Albert Guggedahl, executive secretary of the National Frozen Food Locker Association here, investigations began after a staff conference of regional and district OPA officials. The Association has taken vigorous action to combat the stories.

"They evidently decided," says Mr. Guggedahl, "that some of the shortage of meat in the country was due to leaks through black market operations. Some of the leaks were thought to originate through locker plants, particularly on farm slaughtered meats obtained by city residents without surrendering ration points."

Certain OPA investigators, he adds, have apparently attempted to exceed their legal rights. While OPA is legally empowered to examine books and records of locker plants to unearth price violations, rationing irregularities, or illegal transactions in rationed foods, OPA cannot legally demand locker plant operators to open lockers rented by patrons. Locker operators themselves have no right to open the patron's lockers, points out Mr. Guggedahl, for rented lockers are, in effect, the private property of the patrons.

Some investigators and checkers

Reconversion Plans Progressing; New Goods Unlikely Before '46

Draft's Drain of Repairmen Is Causing Alarm

CLEVELAND — Unseasonably warm weather in March brought a rush of service calls on refrigeration equipment that swamped service contractors in many localities and afforded a preview of possible chaotic conditions in the coming months because of the way in which Selective Service has drained manpower from the service field. W. Ray Kromer, chairman of the National Refrigeration Service Council, reported to a Council meeting here April 3.

The War Production Board has certified only a handful of refrigeration service men under 30 years of age for exemption from Selective Service under the new setup, said Mr. Kromer. More than that, many local Selective Service boards have been ignoring the fact that refrigeration repair is still on the essential list of occupations and have taken many experienced men over 30 years of age in recent draft calls.

"I understand that WPB has permitted considerable expansion in the production of parts for refrigeration equipment," Mr. Kromer said. "That is heartening news, but it won't do much good unless there is some experienced manpower available to install those parts in needed replacements."

Recent reports from Local Service Councils have shown that ranks of service men have suffered sharp depletions since the first of the year, and that the most chaotic type of conditions may prevail this summer. Representatives of a Pacific Coast city said they honestly believed it might become necessary for the

(Concluded on Page 4, Column 1)

Krug Outlines Policies; Won't Insist on An 'Even Start' For All

By Phil B. Redeker

DETROIT, April 5 — Preliminary planning for reconversion to production of civilian goods after VE Day is in full swing, but there is nothing in the cards now to indicate that such things as new automobiles or refrigerators will be available before the end of 1945, WPB Chairman J. A. Krug declared today following a conference with leaders of the automobile industry.

Mr. Krug emphatically denied reports appearing in the public press that WPB had authorized production for 250,000 automobiles, and refused to venture a prediction as to how soon after VE Day such things as refrigerators and automobiles might be available.

The type of program that was laid out with the automotive industry here today will be followed in the other consumer durable goods industries, Mr. Krug said, and he indicated that a meeting with manufacturers of major appliances may be held soon either in Washington or possibly in some Midwest city.

The WPB chairman said that it was unlikely that any new production of civilian goods would be approved prior to VE Day, but that everything possible was being done to permit the resumption as quickly as possible of as much civilian production after VE Day as would be

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IN THIS ISSUE

First complete reports on the Canadian R.S.E.S. conference in Montreal appear in this issue. H. T. McDermott's discussion is on Pages 18 and 19; C. W. Stoner's talk on home freezers appears on Pages 26 and 27; and Managing Editor Redeker "uncovers" the convention on Page 30. Additional stories will appear in future issues.

Bankers have some ideas on how to finance instalment purchases of appliances, so they're going into the business. See Page 6.

Priority regulations have been changed considerably from time to time, making it rather difficult to keep up to date on every ruling. On Pages 10 and 11 the News is publishing an official government review of present regulations as they affect repair shops.

Someday when WACs substitute house dresses for uniforms, we may find that their Army experience will have a bearing on appliance purchases. Page 9.

Everyone predicts a fine future for the room cooler. L. W. Clifford of Westinghouse presents a keen analysis of sales problems on Pages 28-29.

An unusual window conditioner invented by a Detroit engineer provides "reverse cycle" heating and other features by revolving the unit. Page 33.

"Community refrigeration centers" are an important development in this industry. For some good examples see Pages 14-15.

Better methods of applying "refrigeration anesthesia" in surgery cases are outlined by a veteran refrigeration engineer on Pages 22-23.

Many war veterans plan to set up their own businesses. What's THEIR reaction to government restrictions and material shortages? See Page 2.

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Professors Take Over A.S.R.E. Meeting



Recent meeting of the Twin City Section of the American Society of Refrigerating Engineers was more or less taken over by the faculties of the University of Minnesota and Wayne University of Detroit. Guest speaker was Dr. S. A. Larson of Wayne U., who is shown here shaking hands with Dr. F. B. Rowley (left), head of the mechanical engineering department and director of the engineering experimental station at the University of Minnesota. Looking on are C. E. Lund, formerly associate professor of mechanical engineering at Minnesota U. and now director of research for Seeger Refrigerator Co., and Dr. R. C. Jordan (right), associate professor and director of industrial laboratories, Minnesota U. In his talk, Dr. Larson discussed the air transportation of perishable foods under refrigeration, citing it as an important postwar problem of the refrigeration industry.

Many War Veterans Are Postponing Setting Up of Own Business Firms

They're Waiting Until Material Shortages, Gov't Restrictions Ease Up, Survey Shows

NEW YORK CITY—Wartime conditions have convinced most veterans now being discharged of the wisdom of taking jobs in private industry instead of immediately branching out on their own, according to a special survey just released by *Modern Distribution*.

The survey, which was made at the Veterans Service Center, 10 E. 40th St., New York City, and included checks with several Washington sources, revealed that rather than face current war shortages, priorities, complicated government restrictions, etc., a large number of veterans, before opening their own businesses, are taking jobs in respective fields of interest in an effort to accumulate more money and experience.

Of the many hundreds of veterans who visited the New York Service Center between Feb. 21 and March 6, only 81, the report shows, evinced a definite desire to go into business for the first time. Significantly, the majority are steering clear of small retail businesses and are interested primarily in setting up manufacturing or wholesaling operations.

"Reasons for this are varied: most veterans associate retail stores with long hours, hard work, small margin

of profit; they are anxious to make a 'quick killing' and begin producing something that will be speedily swallowed up by unprecedented consumer demand.

"Many tend to favor costume jewelry, a few are interested in hardware items. Largely, however, interest tends to fit in with key industries of the region in which a particular veteran is located. In New York, for instance, numerous veterans are trying to break into the textile field."

Surprisingly enough, only four out of the above 81 ex-servicemen had to avail themselves of loans under the G. I. Bill, *Modern Distribution* pointed out. The others came to the Center well financed by relatives and friends, or had accumulated some money during their time in service.

Although there are no figures available on the number of applications for loans under the G. I. Bill, the survey revealed that loans granted for the country up to March 10 have been insignificant, as follows: farms, 3; business, 23; homes, 1,582, representing a grand total of \$2,666,619.

Some light on the overall picture is revealed by a new War Department survey of the number of men now in service who plan their own businesses.

In general, this survey shows that about 7% of the Army's male personnel, or 550,000 plan to own a business. Another 4% have tentative plans. The decline in the number of businesses during the first two years of war was 530,000, mostly retail. The 7% have better than average financial backing, experience, and ability.

The *Modern Distribution* report emphasized that those most keenly anxious to get into manufacturing are men who were in manufacturing before entering service. Veterans' organizations are doing their utmost to help these people break through the ring of complications which

hinder reentry into business at this time.

Suppliers of raw materials, etc., it was noted, are likewise extending themselves to help the veteran. They realize that it is not just a question of furnishing a few items, but, generally, a case of completely resupplying the ex-serviceman. And in many instances, suppliers who have virtually closed their books are taking on new veteran accounts to help the latter reestablish themselves in business.

Despite this assistance, however, veterans going into business do not have an easy time of it. They are now confronted by numerous war-born problems involving dealings with many government agencies. No single agency, it was claimed, is equipped to aid the veteran wanting to enter business.

The survey further pointed out that manufacturers, and distributors already familiar with the routine, as well as local veterans' agencies, are in the best position to assist ex-servicemen desiring to get into business.

New York 'Y' Expands Refrigeration Course

NEW YORK CITY—More comprehensive courses covering household and commercial refrigeration and basic air conditioning are being offered by the trade and technical school of the New York Y.M.C.A. announces Louis L. Credner, director of the school.

In the term scheduled to start April 9, the school is arranging its classes for three types of students: civilians, defense workers, and veterans.

Full time classes requiring 36 hours attendance a week are being offered, particularly for out-of-town students who wish to complete the course as quickly as possible. In addition, classes can be arranged for part-time students during both day and evening sessions.

ALL-PURPOSE ENGINEERING has a place in YOUR refrigeration plans



Universal Cooler's All-Purpose Engineering in refrigerating power is important to your postwar plans. Here is sound engineering, based on a quarter century's pioneering experience in refrigeration. It means ready, versatile adaptability (of a complete line of performance-tested refrigeration condensing units) to a wide range of cabinet design and applications needs. Write today! Learn why more and more refrigeration manufacturers are saying...

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HERMETIC
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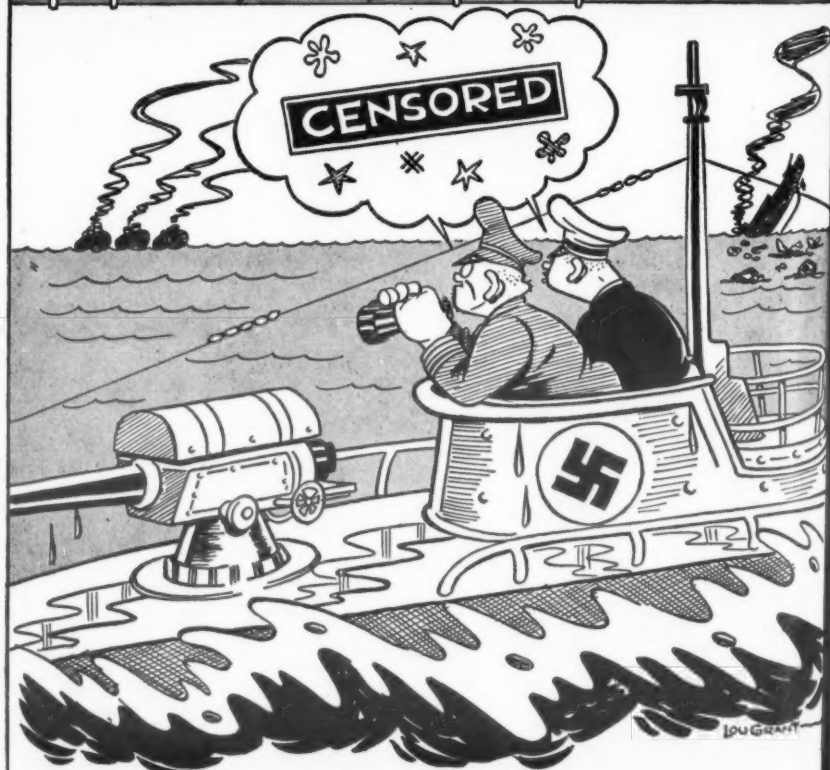
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HOLD AS IT IS TO BUY WAR BONDS

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UNIVERSAL COOLER CORPORATION • Automatic Refrigeration since 1922
MARION, OHIO • BRANTFORD, ONTARIO

COLD FACTS

BY ANSUL



REFRIGERATED SHIPS AND DEHYDRATED FOOD SAVED ENOUGH CARGO SPACE TO FRUSTRATE HITLER'S 1941 SUB CAMPAIGN. THOUGH SOME WERE SUNK, THOSE REACHING ENGLAND CARRIED TRIPLE PRE-REFRIGERATION CARGOES

TWO IMPORTANT CONTRIBUTIONS TO REFRIGERATION AND FOOD PRESERVATION DEVELOPED BETWEEN WORLD WAR I AND WORLD WAR II ARE... ANSUL LIQUID SULFUR DIOXIDE,— ANSUL LIQUID METHYL CHLORIDE... IMMEDIATELY AVAILABLE

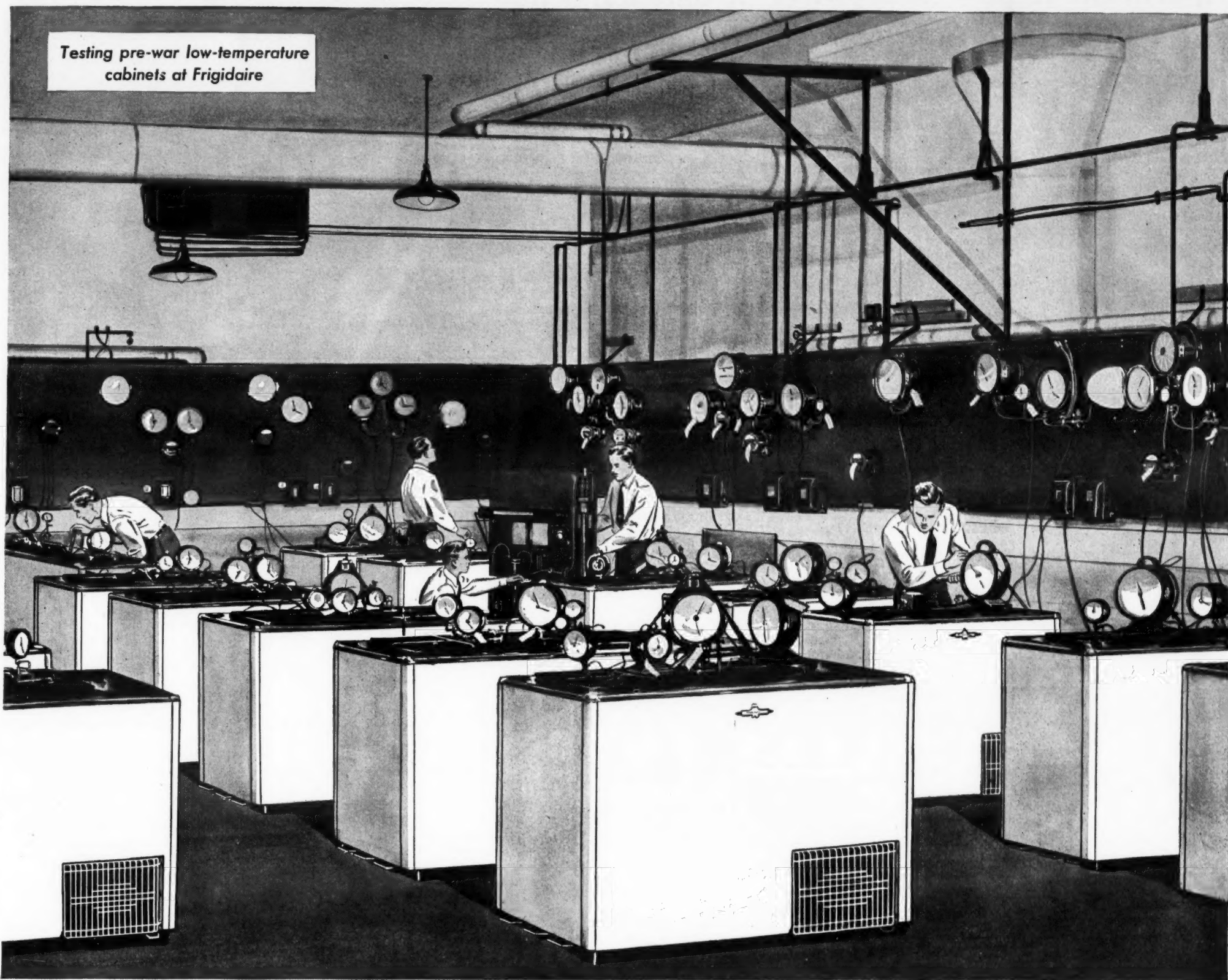
Our technical book, "Ansul Refrigerants" (3rd Edition) available upon request

ANSUL CHEMICAL COMPANY, MARINETTE, WIS.

"Now in our 30th year"

AGENTS FOR KINETIC'S "FREON-11," "FREON-12" AND "FREON-22"

Testing pre-war low-temperature cabinets at Frigidaire



How Frigidaire Experience assures still better HOME FREEZERS for Frigidaire Dealers to sell!

TOMORROW'S HOME FREEZERS will reflect the *experience* of the companies that make them. Experience in manufacturing. Experience in research. That is why the Frigidaire Dealer looks forward with confidence to the time when he will be selling the *new* Frigidaire home freezers. For he knows that Frigidaire possesses unmatched experience in the low-temperature field . . .

Experience in manufacturing. Frigidaire pioneered in engineering low-temperature cabinets . . . for nearly a quarter-century has been manufacturing this type of cabinet, the direct forerunner of the modern home freezer. During this time more than 350,000 such cabinets have been built and sold by Frigidaire—more than by any other manufacturer. And this is in addition to all of Frigidaire's closely related experience in manufacturing equipment for locker plants and general commercial use—and in manufacturing household refrigerators!


Experience in research. Customer research to determine what prospective users want and expect in home freezers. Frozen food research to check these requirements and determine how to develop maximum "usability" for home freezers. Engineering research to apply the scientific skills of Frigidaire and General Motors to the designing of the finest home freezers possible.

What will the new Frigidaire Home Freezers be like? The answers to that question will be decided in test rooms like the one pictured here. But of one thing you may be sure: Frigidaire experience, allied with Frigidaire facilities, will produce the kind of home freezers the public wants and needs . . . at prices that will mean volume sales for Frigidaire Dealers!

BUY AND KEEP MORE WAR BONDS!

**Look to Frigidaire
for leadership
through... EXPERIENCE**

For Excellence



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Division of
GENERAL MOTORS

DAYTON 1, OHIO • LEASIDE 12, ONTARIO

Peacetime builders of

REFRIGERATORS • RANGES • WATER HEATERS
HOME FREEZERS • ICE CREAM CABINETS
COMMERCIAL REFRIGERATION • AIR CONDITIONERS
BEVERAGE, MILK, AND WATER COOLERS

Refrigeration Repair Manpower Hitting a New Low, Council Says

(Concluded from Page 1, Column 4)
Army to move in and maintain the more essential installations.

How terrifically the burden has increased on the individual service man is demonstrated by a survey made in New York City.

In 1941, the contractors surveyed had employed 253 men, who made 376,000 calls. In the same period in 1944 these same firms had 182 men available (many of them newly trained) available to handle 456,000 calls.

This meant that the average number of calls per day per man had jumped from five to nine, and that for every additional man taken out of the ranks of service men from now on, 1,500 calls per year more would be handled by the other men.

The National Refrigeration Service Council some weeks ago gained the opportunity of presenting the case for the refrigeration service engineer to the sub-committee on Essential Activities of WMC (it was said that this was the first industry committee to be heard by the government committee). The Council sought to have refrigeration repairmen placed on the new critical list.

Since this government committee has apparently refused to take action on the request, Mr. Kromer will lead a special committee to meet informally with officials of various government agencies starting April 9. Members of the committee in addition to Mr. Kromer include P. B.

Zimmerman of Airtemp Division, Chrysler Corp., representing Air Conditioning & Refrigerating Machinery Association; R. Kennedy Hanson, representing Refrigeration Equipment Manufacturers Association, of which he is executive secretary; H. T. McDermott, international secretary, Refrigeration Service Engineers Society; and probably a representative of the National Refrigeration Supply Jobbers Association.

"We are asking two things," said Mr. Kromer. "First, that experienced refrigeration repairmen be retained in the industry. Second, that it be made possible to supplement the ranks of repairmen with experienced men returned from other types of work."

"We want to work through the proper government channels in seeking an answer to our request, but if necessary, we are going to see that the public gets the facts—and places the responsibility where it belongs if there is a breakdown of critical proportions in essential refrigeration equipment in the coming months."

Johnson Heads Field Forces For Admiral

CHICAGO—Wallace C. Johnson has been named manager of field activities for the entire United States on all Admiral Corp. products.

Mr. Johnson was formerly midwest regional manager for Admiral.

Admiral Works With Television Station To Teach Dealers

CHICAGO — Admiral Corp. and television station WBKB have concluded a broad joint working arrangement to further television development, reports Richard A. Graver, vice president of Admiral in charge of the radio division.

As the initial phase in the arrangement, Admiral, starting in April, will take over two 30-minute evening periods a week for a variety of experimental telecasts. These programs, although commercial in format, will serve chiefly, according to Mr. Graver, as an "educational course" for Admiral dealers and distributors to ground them thoroughly in television fundamentals. Dealers will attend telecasts in a group as part of the plan.

The programs will be under the direction of Seymour Mintz, advertising manager of Admiral; Pat Shannon, Admiral account executive for the Crutten and Eger, advertising agency, Chicago, and Helen Carson, program director of the station.

A survey of all sets in the WBKB listening area to fix their ownership, location, operating condition, and audience size, is now being made by the station. Weekly "enjoyment questionnaires" to be sent to set owners will probably become a part of the plan.

In New Executive Posts at Frigidaire



INSKO WILLIAMS



ROBERT C. WRIGHT

Mr. Wright was recently named manager of commercial division advertising, and Mr. Williams manager of displays and exhibits for Frigidaire Division, General Motors Corp. Both men have been with the company for 18 years, both of them specializing in the type of work which they will now direct.

1945 ASHVE Guide Is Featured By Added Material

NEW YORK CITY—The twenty-third edition of the *Heating, Ventilating, Air Conditioning Guide* published by the American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York 10, N. Y., is now ready.

A 15-page detailed index, a single page quick reference table of contents, and a brief summary of chapter contents under each chapter heading provide easy reference to the subjects treated in the book.

The *Guide* contains 48 chapters of technical data and information grouped under the general sub-divisions: principles; heating and cooling load calculations; combustion and consumption of fuels; steam and hot water heating; air heating, cooling, and conditioning; automatic controls, instruments, and motors; special applications and miscellaneous.

Among the features which add particularly to the value of the new edition are some of the following: The chapter on Panel Heating and Radiant Heating has been completely rewritten so that the first part deals with the influence of radiant heat upon the occupant and the latter part presents a new method for practical calculations of a panel heating system. An illustrative problem indicates simplifying assumptions which may be used to reduce the work required to design a satisfactory system.

The 1945 edition was compiled by 47 society members and other engineers working under the supervision of the *Guide* publication committee composed of J. F. S. Collins, Jr., Pittsburgh, chairman; W. C. Bevington, Indianapolis; C. S. Leopold, Philadelphia; G. H. Tuttle, Detroit; and T. F. Rockwell, Pittsburgh.

In a total of 1,216 pages the twenty-third edition of the *Guide* contains 808 pages of technical data; 344 pages of equipment data, and the Roll of Membership of the Society. The book is available at \$5.00 per copy.

U. S. Surplus Materials Office In Denver Has Special Cabinet

ALBUQUERQUE, N. M.—Bids are being asked by the Office of Surplus Property, U. S. Treasury, on a mortuary refrigerator here which was manufactured by the Fogel Refrigerator Co.

Of three-cadaver size, the refrigerator is powered by a General Electric Co. "Freon-12" unit. The box has never been assembled and remains in the six original factory-packed crates. Refrigeration unit has been uncrated, however.

Approximate overall dimensions are 39 in. wide, 96 in. high, by 90 in. deep. There are three doors, each approximately 28 in. high by 26½ in. wide. Insulated walls are approximately 4½ in. thick, officials say.

Sketches are available at the Treasury's regional office in Denver.

Philco International Will Export New Coraire Heaters

CLEVELAND — Philco International Corp., subsidiary of Philco Corp. of Philadelphia, will handle world-wide exports of the products of the Coraire Heater Corp. of Cleveland, according to A. W. Conley, Coraire vice president and general manager.

Products of the Coraire corporation are a new kind of heating device, burning either gas or oil, for the winter air conditioning of homes and business places. Principal feature is a patented heat exchanger composed of 46 venturi tubes—that is, tubes with a smaller cross sectional area at the middle.

Two advantages claimed for this heat exchanger, which is made of cast iron, are that more heat-absorbing surface is provided, thus reducing the amount of heat wasted through the stack, and at the same time providing more heated surface for the warming of the air forced through the 46 tubes of the exchanger by a fan.

It is claimed that the heat exchanger of Coraire also gives a greater volume of heated air, because the shape of the 46 venturi tubes of which it consists produces a revolving or spinning motion in the air which is forced through by a fan.

Retail Shoe Stores Plan Comfort Cooling In Postwar Changes

SPRINGFIELD, Mass.—Most retail shoe stores in the nation are planning extensive postwar redecoration and remodeling, and many are considering the installation of air conditioning, according to a recent survey made by the *Boot and Shoe Recorder* trade journal.

Reports show that 79.4% of store owners and managers are planning improvements to meet postwar competition, with the emphasis on interior redecoration. In addition to air conditioning, shoe retailers are considering new carpeting, illuminated displays, and new store lighting. More than half will remodel or install new furniture and equipment.

IT MAKES LESS FUSS



A prewar refrigeration compressor built by York Ice Machinery Corporation. Pistons and connecting rods are Alcoa Aluminum permanent mold castings. Suction valves, discharge valve plates and cages are also aluminum.

Alcoa Aluminum Alloys help to make this York compressor lightweight and compact.

The V/W design has the same crank effort characteristics as does an "in line" cylinder arrangement. The lightweight aluminum pistons and connecting rods reduce reciprocating and rotating weights and make balancing easier, with consequent reduction in vibration. Higher rotative speeds are possible, therefore.

The aluminum alloy connecting rods serve as bearing metal, eliminating the need for bearing inserts at the crank and wrist pins. The high heat conductivity of the pistons helps to reduce compression chamber temperatures. And of great importance here, aluminum works well in contact with the refrigerant, Freon-12.

ALUMINUM COMPANY OF AMERICA, 1975 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM





LOW TEMPERATURE WATER COOLERS

FOR BAKERIES, BOTTLERS and General Application

Capacities to 300 G. P. H. and storage to 150 gallons. Water Cooled to 34 degrees.

SAFE-DEPENDABLE-EFFICIENT SHIPMENT FROM STOCK

Write for Complete Catalog

FILTRINE MANUFACTURING CO.
53 Lexington Ave., Brooklyn 5, N. Y.
"Manufacturers for Over 40 Years"

YOU WILL HAVE A GREAT FUTURE WITH NORGE...

AND HERE'S WHY...

It is no accident that thousands of dealers have found that the Norge line is their "big profit line." There are sound reasons for these outstanding financial successes. To these reasons some fresh ones have been added. Combined, they assure both old and new dealers of a great future with Norge.

Norge offers all major appliances under one brand name. Norge Rollator refrigerators, gas ranges, Ro-ta-tor washers, electric ranges and home heaters comprise a well diversified line—a line that helps every Norge dealer make multiple sales of proved products to each customer.

Every Norge product has exclusive features. Each model is strong on eye-appeal. This is backed by "buyable differences" of convenience and efficiency.

Norge mechanisms are noted for long, trouble-free service. Such a reputation facilitates combination sales to the same customer. And this reputation is maintained by outstanding engineers, together with skilled workmen using fine equipment.

Norge offers products of experience. Norge's appliance know-how is the result of many years of designing, changing, home-testing and improving. This protects your profits.

Norge appliances have an exceptional war-time record. The praise of dealers and owners alike has been won for Norge products during the "non-replacement" years by the sturdy construction of all working parts, plus the convenience of nationwide major service centers.

Norge advertising is pre-selling prospects. Aggressive, consistent national and local

advertising is a well-known Norge policy. This has been maintained throughout the war years. It will be extended postwar.

Norge is the oldest manufacturer marketing appliances exclusively through independent distributors. Norge's past has been tied up with independent distribution, which Norge has championed from the beginning.

Norge will not compete with its dealers. Norge was the first appliance manufacturer to formally announce a postwar policy of independent distribution.

Good profits for Norge dealers are assured by fair pricing, by efficient production, by minimum selling costs and by wide public acceptance.

Norge personnel is experienced. A large percentage of Norge factory men have been on the job for over ten years. This results in a well-seasoned personnel working with the Norge dealer, giving him friendly, experienced counsel.

Norge is noted for "famous firsts." Striving consistently for improvement, Norge engineers have originated many of the outstanding developments in the appliance field. Some of these Norge "firsts" have later become common in the industry. Others, protected by patents, are exclusive to Norge. The following are some of Norge's "famous firsts":

First Rollator compressor, revolutionizing electrical refrigeration.

First all-white washer line.

First L-shaped heat exchanger in heaters.

First all-porcelain gas range.

First refrigerator ready for operation when plugged into a light socket.

First cold control on freezer.

First rolled edges on food compartment.

First food compartment door sealed with rubber.

First completely sealed freezer.

First in modern cabinet beauty, setting standard of design.

First easy-opening door latch... a nudge and the door swings open.

First permanently sealed Rollator Cold-Maker.

First refrigerant-cooled Cold-Maker.

First Handefroster—the most convenient receptacle for defrost water.

First to eliminate defrost water from meat receptacle.

First automatic defrosting system.

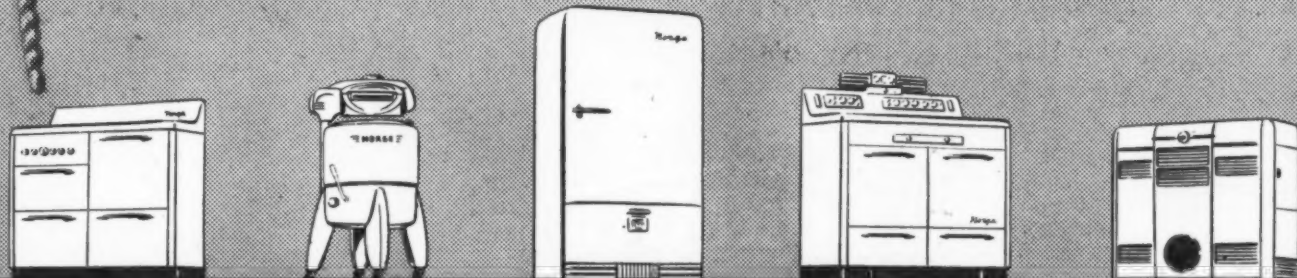
Borg-Warner gives Norge enormous financial strength. Association with the mighty Borg-Warner Corporation gives to Norge the stability, resources and advantages obtainable only by ready access to immense capital. The statement, "Norge, A Borg-Warner Industry," means a great deal to Norge dealers too—much more than you may at first realize. There are 19 separate divisions operating under Borg-Warner, which, in peacetime, produce essential equipment for the home and farm, and for the aviation, automotive, marine and farm implement industries. Each of these manufacturing units lives up to Borg-Warner's published precept: "Design it better—make it better." All the experience, all the discoveries resulting from this combined effort are pooled for the benefit of each Norge appliance... and each Norge dealer!

NORGE DIVISION • BORG-WARNER CORPORATION • DETROIT 26, MICHIGAN

SEE NORGE BEFORE YOU BUY

NORGE

A BORG-WARNER INDUSTRY



BETTER PRODUCTS FOR A BETTER WORLD

FOR STAINLESS STEEL
REFRIGERATOR SHELVES
WHY NOT TALK OVER
YOUR PROBLEMS WITH
THE LEADING
MANUFACTURER OF
STAINLESS STEEL
SHELVES?



**WALL WIRE
PRODUCTS
COMPANY**

11333 GENERAL DRIVE
PLYMOUTH, MICHIGAN

Makers of STAINLESS STEEL AND
REINFORCED REFRIGERATOR SHELVES AND WELDED WIRE PRODUCTS



NO PRODUCTION PROBLEM HERE!

Everybody will be expecting to see an enlarged use of plastics on your product after the war, and fortunately that detail of your modernization program will be one of the simplest. You just order Formica door backs and breaker strips in color and install them by the same methods you have always used. There is no special tooling, no redesign, no delay, trouble or grief.

Formica is perhaps the easiest of all surfaces to keep clean and sparkling. It absorbs no stains. It stands up to rigorous cleaning. It provides a satisfactory thermal break.

And it is available in numerous cool light colors and in patterns. It will help you sell!

THE FORMICA INSULATION COMPANY

4610 Spring Grove Avenue, Cincinnati 32, Ohio

FORMICA

Banks Prepared to Finance Appliance Instalment Sales After the War Ends

Plans of 2 Groups of Banks Include New Forms of Limited Dealer Liability

NEW YORK CITY—Postwar dealers are going to find a nationwide organization of banks ready to finance consumer instalment buying of nationally distributed household appliances.

The banks' National Sales Finance Plan has been four years in the making. It will go into operation within 60 days after the wheels of appliance production start rolling.

Of importance to the dealer is the plan's scale of interest rates, and the conveniences of simpler procedure made possible in doing business with a local institution already well known to him.

Major purpose of the plan is to promote sales of the larger appliances marketed by national manufacturers. Other consumer durables adaptable to instalment selling may be included in the plan after the war.

Two groups of banks, one in the Far West, the other in the East and Middle West, will project the plan's national coverage. They are the Bank of America, representing 835 banks in 11 Western states, and over the rest of the country an association of between 600 and 900 independent banks under the nominal leadership of the Bank of the Manhattan.

At least one key bank in each of the regional areas of the country will be divided into will work with the smaller banks. It will stand back of a predetermined portion of the instalment paper purchased by these banks from their local dealers.

Such participation can allow the local banks to stay within the limitations on this class of investment imposed by the federal or state association to which they belong, or those imposed by the bank's own board of directors.

Manufacturer, distributor, and dealer all take part. The appliance dealer receives cash from the bank for the conditional bill of sale signed by him and the purchaser, giving the bank a lien on the appliance.

The distributor's sales to the dealer will be similarly financed. Under the repurchase agreement that is part of the plan, the manufacturer assumes liability up to a specific figure whenever circumstances force the dealer to default.

IN EVENT OF DEFAULT

The Bank of America group plan allows the dealer to pay a certain amount into a reserve fund into which the manufacturer also makes a proportional payment, and in the event of default the dealer is left only partially liable.

The Bank of the Manhattan plan offers, in addition to this, a limited recourse arrangement under which the dealer is completely liable only until three months' instalments have been paid. After that time the manufacturer assumes a predetermined portion of the liability.

Most finance companies offer no recourse plan. In the few exceptions to the rule, the manufacturer usually agrees to repurchase from the dealer or distributor at a figure equal to the unpaid balance.

The banks can offer the appliance dealer certain specific advantages, they believe.

1. In most instances rates will be lower. The Bank of America plan anticipates financing rates of 6% annual interest on the unpaid part of the purchase price. The Bank of the Manhattan group has planned for downgrading even farther on the highest type risks.

2. It is claimed to be generally more convenient. Purchasers and dealers alike already use the bank in various ways for other business. And the bank itself, with its knowledge of local business and people, can simplify credit operations. This is especially true in small communities.

QUESTION SOME CLAIMS

Other claims hold less water. Overhead will be less when the banks carry instalment financing, the banks say, since they have facilities in parallel operations and wouldn't need special branch office maintenance.

But finance companies also are specialists in this, and through experience have learned to operate probably just as efficiently and economically as the banks can.

The banks accentuate their willingness to arrange special payment periods for people in seasonal work—workers in livestock, and food crops, and flowers. But finance com-

panies are no less willing to make arrangements where the individual is a good credit risk.

Finance companies make similar claims for the advantage of their system. They point to a record of helping dealers and customers through difficult times by way of temporary payment suspensions. But here again the banks do the same thing. It depends in each instance upon the credit responsibility of the individual borrower.

The finance companies claim long experience in this field that banks have not had—experience ranging from automobile financing to small personal loans.

But banks in the past have handled almost all of the housing instalment buying, they are perfectly willing to negotiate small loans, and they are hardly amateurs in the business of handling money. The majority of these conflicting claims more or less cancel each other out.

There are other questions to be answered, however. Will the banks do the deciding on the individual buyer's credit standing? Answer: Yes. As in similar activities, the bank will draw up the lien and do the deciding, since it carries the risk on the investment.

Will the buyer be protected to the extent of getting some sort of title to the appliance when he has paid 75% or 90% of the total amount, or will the bank still be able to repossess it whenever he falls behind on a payment?

Answer: As always, the lien holder retains title until the final payment is made. But almost without exception banks and finance companies alike would rather have cash than the stock for a second hand business. If payment is almost completed, or the borrower is a good risk anyway, they will go along with him.

NO PROBLEM HERE

What about the limitations on a bank's authority to extend credit? Answer: This isn't anything to worry about. It's a traditional standing rule that a bank mustn't put more than 10% of its money into instalment paper. This figure wouldn't even be approached in appliance financing; appliances aren't that expensive.

There's a lot of credit investigation and paper work required in instalment financing. Won't this add perceptibly to personnel problems, and probably mean setting up a separate department to handle it?

Answer: No. Most banks already handle some instalment paper, some of them handle a lot of it, and no separate departments so far have seemed necessary. Since appliances are not big money investments, and will be carried at most between one and two years, these operations don't threaten to tie up any one aspect of bank business.

Are the banks planning any national setup for going into automobile financing after the war?

Answer: Not yet, at least. They are considering it. A national survey, still in the paper stages, will give them much of the information they want. It's a field offering a great many more problems than appliance instalment financing does.

If it took the banks four years to set up this present program, any further extension will be considered just as carefully. It won't happen tomorrow.



FOR PROFIT

TYLER'S
TOPS

YOU can go places with Tyler in the years ahead. The growing Tyler line meets today's—and tomorrow's—demand for self-service, frozen foods display, better design, better construction, better value! Write for complete line catalog today! Tyler Fixture Corp., Niles, Michigan

TYLER

TYLER FROZEN FOODS
DISPLAY CASE—
open, self-service, wall type!

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Iams and Seddon Form Jobbing Firm

BOSTON—Hillis Iams and R. R. Seddon, refrigeration engineers formerly with Mills Industries, have organized a new refrigeration parts jobbing firm known as Supply Distributors Corp., at 167 Brighton Ave. here to deal with the New England trade.

Mr. Iams has been in the refrigeration field since the early 1920's when he operated his own business in southern Ohio. He joined Mills in 1935 as field engineer and later became a district sales manager of the company's condensing unit division.

Since Pearl Harbor Mr. Iams had been located in Washington, D. C., representing Mills in procurement of government contracts. He is a member of the American Society of Refrigerating Engineers and the Refrigeration Service Engineers Society.

Mr. Seddon, a native New Englander, organized the Miller & Seddon Co. in 1927. Later he became a field engineer for Mills and joined the sales department of the condensing unit division. He, too, is a member of A.S.R.E. and R.S.E.S.

'Artificial Arctic' Tests Army Mine Detectors

NEW YORK CITY—Regardless what the temperature of day may be outside, land mine detectors are tested for sub-zero sensitivity at the Horni Signal Mfg. Co. here in a room whose temperature can be dropped to -40° F. by means of a Carrier refrigerating machine that simulates arctic weather. The refrigeration equipment was installed by Consolidated Conditioning Corp., Mount Vernon, N. Y.

Because detectors are sensitive to iron, the company's test rooms are constructed of non-metallic materials and are 8 ft. wide, 10 ft. long, and 8 ft. high. The arctic room is built within another room and the ducts to distribute the conditioned air are made of asbestos mill board.

Besides sub-zero weather experiments, the company tests land mine detectors in rooms of varying temperatures to permit modifications of designs and equipment so that detectors are effective in any climate.

To simulate weather in tropical combat areas, test rooms whose temperature rises as high as 175° are provided.

These studies in the "all weather" test rooms supply data on how heat and moisture affect the sensitiveness of the devices. The control of test weather makes it possible to develop a rectifier that eliminates erratic action and obtains perfect response.

Gilmer BELTS

Keep your eye on present-day air conditioning and refrigeration equipment. Their importance to vital war production is building sales for alert men.

Naturally, a good supply of Gilmer Belts will have you ready to meet any belt emergency. Rugged, long-lived, and efficient, Gilmers are built to stand the gaff and do a topnotch job. Get in touch with a Gilmer jobber, and be ready for more business.

L. H. GILMER COMPANY
Tacony, Philadelphia 35, Pa.
Division of United States Rubber Company

Insulation and Blower Coil Convert Milk Cooler To -20° F. Test Chamber

TOLEDO—A converted milk cooling cabinet, fitted with a blower type coil for water defrost, was made up by McCray Refrigerator Co. of Toledo for the Electric Auto-Lite Co., which will use it to test batteries at temperatures of -20° F.

These are some of the things which the McCray Refrigerator Co. of Toledo shop crew did to convert the milk cooler cabinet to a low temperature cabinet capable of holding -20° F., for testing batteries.

Four inches of insulation were added to the walls of the cabinet, making a total of 8 inches in the sides.

Foam rubber type gaskets replaced the old gasketing on the lids.

A Kramer-Trenton blower-type evaporator with the water defrost feature was placed in one end of the 10-can capacity liner. Other cooling surface was removed.

In the back of the cabinet, a hole was bored, extending through the lining, through which necessary con-

nections will be made to the batteries. Once permanent connections have been made, they will be sealed in with a special compound.

Refrigeration will be supplied by a 1-hp. water cooled condensing unit. It will be mounted on an extension of a special wooden base on which the cabinet sits.

"We are enthusiastic about the use of the water defrost feature," says F. I. Davison, head of the McCray Refrigerator Co. of Toledo.

"Even with continuous operation, defrosting won't be necessary more than two or three times a day. It will take only five or 10 minutes at a time, and will cause only a 5° F. temperature rise."

He explained that a similar type of water defrost evaporator has been used in a -5° F. box on a milk farm, with only 1° F. gain in temperature during defrosting time.

Defrosting is accomplished manually, by means of a 3-way water valve.

Hospital Ship Freezes Milk For Wounded

CHARLESTON, S. C. — Wounded soldiers returning to the United States on hospital ships can now drink fresh whole milk, thanks to a freezing process developed by Charleston port officials.

Packed in quart paper cartons, fresh milk is delivered to hospital ships in port here and placed in refrigerated storage compartments with the temperature held between -10° and -15° F. The milk is frozen quickly with no damage to the milk or containers, it is said, and then stored at a 20° F. temperature.

To thaw the milk, the cartons are set outside the refrigerators the night before use and permitted to stand at room temperature until breakfast.

Hospital ships can carry enough frozen milk to supply a glassful to each soldier at every meal, and fresh milk, surveys reportedly show, is the food most desired by men at the fronts.

40th Birthday Celebrated With Open House By Elliott-Lewis Co.

PHILADELPHIA — The Elliott-Lewis Electrical Co., Inc., founded in 1905, celebrated its fortieth anniversary March 21-23 with an open house attended by almost a thousand guests during the three days.

Elliott-Lewis is distributing agent for more than 100 industrial and marine suppliers. The company is headed by Frank Elliott, son of the founder. It will handle electrical appliances after the war.

McCann-Erickson Gets Schaefer Account

MINNEAPOLIS — Schaefer, Inc., manufacturer of low temperature cabinets, has appointed McCann-Erickson, Inc., to handle both its advertising and public relations.

McCann-Erickson's Victor Lowrie will be advertising account executive, and Philip McClosky will be contact man for public relations.



FOOD SHIPPERS...

... Will want the complete facts about these new developments for faster, safer food handling

Entirely refrigerated cargo ships speed foodstuffs to our fighting men—all over the world—to feed peoples in every land.

In postwar, these new developments will certainly be adapted to solid trainloads, fast highway trucks, yes, even transport planes in the air will speed fresh foodstuffs to world wide markets, safer and economically.

Kerotest engineers can help you in planning your equipment to capture these new profitable markets.

KEROTEST MANUFACTURING CO., Pittsburgh, Pa.

KEROTEST VALVES

PRECISION ENGINEERED

Big Savings Accounts Won't Mean Easy Selling Job Postwar, Says Rasmussen

SEATTLE—Despite the tremendous savings accumulated by consumers and their pentup demand for goods, a top-notch selling job will have to be done postwar to maintain high employment, declared James H. Rasmussen, general sales manager of Crosley Corp.'s manufacturing division, in a recent talk before the Advertising and Sales Club of Seattle.

While war-time savings have been estimated at \$58 billion, about \$43 billion of this sum is in the hands of families with incomes above \$5,000 a year, which constitute only about 9% of the total number of American families, emphasized Mr. Rasmussen.

Savings of large income families represent largely investment funds rather than liquid funds that will be spent for consumption goods, he believes.

Families having incomes of \$3,000 a year or less, which constitute 73% of the total number of families, have estimated war-time savings of only \$8 billion, and many in this group will have to spend most of their savings for rent and food during the reconversion period, predicts Mr. Rasmussen.

"Sales are dependent to a greater degree on income than they are on savings," he continued. "Joe Doakes' has an average 'take-home' of \$70 a week, by working 56 hours a week. His wife and daughter each are earning \$40 a week. Today, they will buy almost anything they can get."

"When Germany is defeated, 'Joe' will no longer be working 56 hours and will not bring home \$70. His wife and daughter probably will be laid off. His buying power will be much less than it is today."

"There is plenty of evidence to indicate that dealers have become overly optimistic. A recent survey among dealers and consumers in the same area showed that the dealers are ready to buy, in the first postwar year, 80% more refrigerators, more than twice as many radios, and over 2½ times as many electric irons as the consumers would buy from them," declared Mr. Rasmussen.

The nation's productive capacity has increased so tremendously in the past four years that, when it is turned to civilian production, it can fill quickly the first easy-to-get

orders, he thinks." A survey reveals potential capacity to produce almost 50% more of physical output than our largest prewar year."

Distribution, not production, will be the chief problem, he said.

"No company will be satisfied to go back to its 1941 sales volume," he added. "All are thinking in terms of increased postwar sales to support increased manpower and to utilize the greater production facilities we have acquired."

In addition, most companies will probably face competition from new firms and established firms planning to enter other fields, he said.

Much of the responsibility for keeping 50 to 60 million people employed after the war must be shared by sales management and by the nation's engineers and industrial designers," according to Mr. Rasmussen. Sales management must, he said:

"1. Rebuild sales organizations which have become depleted during the war, as salesmen have entered other lines of work."

"2. Recruit new sales personnel. One survey among war workers who had previously been salesmen showed that 69% of them preferred factory work and only 1% wanted to return to selling."

"3. Train new men as salesmen and also train present salesmen who may have become 'rusty' because of lack of opportunities for sales activities."

The nation's greatly increased productive capacity will necessitate the development by engineers of new products, for if companies limit themselves to producing their prewar lines, they won't be able to maintain high employment necessary for prosperity, he added.

Advertising Award Won by Frigidaire



In a recent advertising competition sponsored by Associated Business Papers Frigidaire Division, General Motors Corp., took first prize in Division 6 and the honor award in the merchandising division. Here James F. Pedder, Frigidaire advertising chief, receives a silver plaque from Kingsley L. Rice, president of ABP, while Milton H. Schwartz, vice president of Foote, Cone & Belding, Frigidaire advertising agency, looks on.

Rebuilt Kelvinator Unit Prices Set by OPA

WASHINGTON, D. C.—Maximum prices for all sales of Kelvinator or Leonard refrigerator replacement units rebuilt by Nash-Kelvinator Corp. have been established by the Office of Price Administration in Order 418 to MPR 136. Prices are as follows:

For sales by Nash-Kelvinator Corp. to the following classes of purchasers the maximum prices are:

Units with—	Maximum prices for—		
	Wholesale distributors	Dealers	Consumers
2-tray evaporator	\$32.50	\$37.50	\$49
3-tray evaporator	32.50	37.50	49
4-tray evaporator	36.50	42.50	55
6-tray evaporator	40.50	47.50	60

These prices include Federal excise tax. In the case of sales to wholesale distributors they include delivery. In the case of sales to consumers they include installation of the unit in the consumer's refrigerator.

For sales by wholesale distributors to dealers the maximum prices are:

Units with:	Maximum prices for sales to dealers	
	Maximum price	for sales to consumers
2-tray evaporator	\$37.50	
3-tray evaporator	37.50	
4-tray evaporator	42.50	
6-tray evaporator	47.50	

These prices include Federal excise tax.

For sales by dealers to ultimate consumers the maximum prices are:

Units with:	Maximum prices for sales to consumers	
	Maximum price	for sales to consumers
2-tray evaporator	\$49	
3-tray evaporator	49	
4-tray evaporator	55	
6-tray evaporator	60	

These prices include Federal excise tax and installation of the unit in the refrigerator of the consumer.

If any of the above units are sold by the Nash-Kelvinator Corp., distributors, or dealers with a four-year replacement contract, \$5 may be added to the maximum prices set forth above.

Any seller subject to this order may require, in connection with sales under this order, the surrender by the buyer of the unit which the rebuilt unit is intended to replace. No allowance need be made by the seller for the surrendered unit.



New York Branch:
103 Park Avenue, New York 17, N. Y.



Newspapers...

Magazines...



Radio... WILL ALL WORK FOR

YOU IN SELLING PHILCO

FREEZER CHESTS!

You know how Philco attained leadership in radio! First of all, by building radios that gave America what it wanted. And then by throwing all the weight of all means of advertising back of that radio!

You know how Philco entered the refrigerator business... and in an astoundingly short time put the Philco Refrigerator up among the leaders in the industry.

When the war is won... Philco will put the same aggressive advertising and merchandising behind the promotion of a complete line of Freezer Chests.

It's a little too early to go into details... but of one thing you can be sure... Philco will give you a line that will include every wanted feature... will reach every section of the market... plus an advertising and merchandising campaign with all the punch and power for which Philco is famous!



PHILCO

Famous for Quality the World Over



A GOOD UMBRELLA MAY KEEP YOU DRY, but...

... wouldn't a refrigeration engineer look foolish holding one over a cooling unit!

However, he has known for years that TZ was specially designed to keep a refrigeration system dry. And he, and thousands of others, used more of this liquid dehydrant in 1944 than ever before. But that's an old story, for TZ has been breaking sales records each year right from the beginning.

Destroys Moisture Chemically and Neutralizes Acid

THAWZONE

The PIONEER FLUID DEHYDRANT

HIGHSIDE CHEMICALS CO.

195 Verona Ave.
NEWARK 4, N. J.

New Principals Will Expand Operations of Tenney Engineering

MONTCLAIR, N. J.—Monroe Seligman, Cleveland A. Sewell, and Saul S. Schiffman are the new owners of Tenney Engineering, Inc., Montclair, N. J., firm which has specialized in the manufacture of low temperature testing equipment.

The company plans to manufacture a more general line of refrigeration equipment in the future, specializing on coils and thermostatic expansion valves, the new owners declare.

Mr. Seligman, the president, was formerly sales manager of American Coils Co. Mr. Sewell, vice president, was plant superintendent of the same company, and at one time was in charge of research for Larkin Coils Co. Mr. Schiffman, secretary-treasurer, held the same position with Liberty Fuel Oil Co. and Dornell Products Co. of Newark, N. J.

Philco Forming Organization of All Service Men

PHILADELPHIA—Formation of Philco Service, a world-wide organization of appliance service men, was announced last week by Robert F. Herr, vice president in charge of service for Philco Corp.

"Philco Service is the natural outgrowth of 10 years' experience with Radio Manufacturers' Service, which Philco organized in 1934," Mr. Herr said in explaining the purpose of the new organization. "Thousands of members of RMS are today serving the Army and Navy as radar and electronic technicians. All these and many new appliance service men are expected to join Philco Service, which will help them become even better technicians and business men."

Membership in Philco Service is open to individual service men, dealers' service men, and dealer organizations both in the United States and other countries which have and maintain facilities adequate to carry on high quality work. Members will be informed as to the latest technical developments and will be instructed in maintenance and repair work.

One of the features of the program will be a Standard Labor Charge schedule to insure the public of fair prices on its repair work and at the same time assure the service man that he is properly compensated.

Freezers, Dishwashers Are Appliances That WACs Want Most After War

Army Experiences Prove Worth of These Items

WASHINGTON, D. C.—WACs may provide a phenomenal postwar market for household equipment—especially quick freeze units and dishwashers. Of these uniformed girls, 48% had used quick freeze units before enlistment, while 98% want them in the postwar period. Only 16% of the WACs used dishwashers prior to the war, but since trying them out in the Army, 97% want them when peace comes.

These are just a few of the facts uncovered by Lieut. Marie Jay Cady

after surveying some 1,025 First Air Force WACs from Maine to Florida. The First Air Force's vital statistics turned up some illuminating facts on the background of its women soldiers, the effect of Army life upon their behavior, and their postwar plans.

Other favorites listed by the WACs in the household equipment line were electric mixers, electric choppers, electric ranges, electric refrigerators, and a full assortment of knives.

Seven out of eight women queried

would rather live in a house than live in an apartment. Preference for an apartment, however, increased with age, with one in four women over 35 preferring the apartment.

Before the war, less than one woman in three ate a hearty or medium-sized breakfast. Now more than half pack away a substantial morning meal. Two out of five plan to continue this practice in civilian life.

Food products showing the largest ratio of increase in the Army include vegetable and fruit juices, salads, fresh fruits, vegetables, poultry, veal, beef, mutton, cocoa, and chocolate.

Regarding incomes expected, 50% of the women believe that, if single, they will need \$1,500 to \$2,000 a year. Some 26% of the group think that a family of four should have an income of \$2,400 to \$3,000.

Floor Covering Firm Plans Big Dealership

CINCINNATI—F. A. Kamp & Co., one of Cincinnati's leading floor covering houses, has announced that postwar they will handle the complete General Electric line. Mr. F. A. Kamp revealed that he is planning to display six different complete electric kitchens in his showrooms.

New Los Angeles Firm

LOS ANGELES—Los Angeles Refrigeration Sales & Service is the firm name under which Roy Slaughter and Earle R. Buck have published a certificate that they are conducting business at 1515 W. Eleventh St. here.



FORWARD with

E-X-P-A-N-D-E-D MANUFACTURING FACILITIES PLUS GREATER "KNOW HOW" FOR POST WAR PRODUCTION

TODAY—A 4-Star Performance in War Production! TOMORROW—New Achievements in The Store Equipment Industry!

**WEBER
OPENS A NEW
PLANT—IN
EL PASO, TEX.**



Our Postwar equipment, which includes COMMERCIAL REFRIGERATOR AND SODA FOUNTAIN EQUIPMENT—ROLL-A-DOOR FROSTED FOOD AND ICE CREAM CABINETS AND HOME FREEZERS, combines sound engineering with revolutionary developments. Exclusive territories now open.

**Manufacturers of
COMMERCIAL
REFRIGERATION**
Look for the "LACROSSE" emblem for Assurance of Quality and Performance.
Walk-In, Beer Dispensing and Beverage Coolers
BLUE RIBBON FARM MILK COOLERS
LaCrosse Novelty Box Mfg. Co.
La Crosse, Wisconsin

EASY-TO-USE BARGAINS
ACCURATE! UP-TO-DATE
COMPLETE! GOOD LINES!
ETC. BUYING GUIDE
BIG PRINT WHOLESALE PRICES, ETC.
EASY-TO-USE QUANTITY DISCOUNTS ETC.
AIRO
A DREAM COME TRUE!
We're in the kind of refrigeration, ice, parts, and...
AIRO, of course. Write for yours today!

AIRO SUPPLY CO. (NOT INC.)
WHOLESALE ONLY
2732 N. Ashland Ave., Dept. B
Chicago 14, Illinois



WEBER SHOWCASE & FIXTURE CO. Inc.
5700 Avalon Blvd., Los Angeles, Calif.
LOS ANGELES, WHITTIER, EL PASO

WEBER SHOWCASE & FIXTURE COMPANY
5700 Avalon Boulevard
Los Angeles, California
O. K. WEBER

Please send information regarding your distributor's franchise.

Name _____
Firm _____
Address _____
City _____ State _____

A Guide To Present Priority Assistance Available To Appliance Repair Shops

The following guide to priority assistance now in effect for electrical appliance, radio, and mechanical repair shops was prepared by the Electrical and Mechanical Repair Section, Service Trades Division, Office of Civilian Requirements, WPB. G. W. Weston is chief of the section.

If you are engaged in any kind of repair work, this information is vital to you. Cut it out and put it into your own priority file, or paste it up on the wall.

All repair shops and contracts engaged in maintenance and repair work are subject to a number of War Production Board regulations, made necessary by the need for controlling materials so that the Armed Forces may be properly supplied.

THIS BULLETIN IS NOT DESIGNED TO REPLACE ANY WPB ORDERS OR REGULATIONS. IT IS, INSTEAD, A GUIDE TO THEM AND THE REGULATIONS THEMSELVES SHOULD BE CONSULTED IN EVERY CASE. COPIES OF ALL ORDERS AND REGULATIONS MAY BE OBTAINED WITHOUT CHARGE FROM THE NEAREST WPB DISTRICT OFFICE. In addition to giving the repair man or contractor copies of the regulations he needs, a WPB representative will always be glad to talk over materials and service problems with him in person. He knows the importance of the work, the problems to be faced, and how they can be met.

The information contained in this guide was up to date as of March 23, 1945, but it must be remembered that as the demands of war and the supplies of materials and products change, WPB is forced to keep in step by changing its regulations accordingly. Therefore, it is well to keep abreast of changes. Many of them may be of considerable benefit

to the repair man. The best way of keeping up to date is to call on the nearest WPB office occasionally.

If you are in doubt as to the location of a WPB district office at which you can obtain assistance, ask your Chamber of Commerce or write to the War Production Board, Washington 25, D. C., for the location.

The following material is divided into sections covering controlled materials, motors, refrigeration and air conditioning, solder, radio repair parts, repair parts and materials in general, use of the customers' ratings for maintenance and repair work, construction, tools and special equipment, a listing of the principal WPB orders controlling electrical repair and maintenance equipment, and a summary of the ways of obtaining materials.

Controlled Materials

CMP Regulation 9A tells how repairmen can get limited amounts of controlled materials (copper, steel, and aluminum in controlled materials form, including copper wire and cable and copper tubing) for civilian

maintenance and repair jobs, and also the rating they can use to get other materials and parts.

This regulation also tells how certain repair shops which do industrial work, including motor rewinding, may get permission to use the allotment symbol S-1 to purchase larger quantities of controlled materials.

A way that shops servicing industrial and commercial refrigerating and air conditioning systems can obtain controlled materials by using a special MRO allotment symbol and certification is specified in Order P-126.

Repairmen working with metals should read WPB Orders M-9-c, M-9-c-4, and M-126, which contain certain restrictions on the uses of copper and steel, respectively. In order to find the conditions under which copper or copper base alloy pipe, tubing, or fittings may be installed for cooking, heating, or plumbing purposes, consult Order M-9-c-4.

Schedule VI of L-126 also contains restrictions on the use of copper or copper base alloy pipe or tubing in service connections for industrial and commercial air conditioning or refrigeration systems.

Motors

Interpretation 1 of CMP Regulation 9A emphasizes that the rating given to repairmen by it cannot be used to get any "complete item ordinarily

used by itself." However, according to a press release of March 10, 1944, new fractional horsepower motors, to be used for maintenance and repair replacement purposes in mechanical refrigerators, washers, pumps, and other machines, are considered repair items and may be ordered from suppliers or motor dealers with CMP Regulation 9A ratings. Such rated orders must be honored in accordance with the rules prescribed in Priorities Regulation No. 1.

Rules for the purchase of new fractional horsepower motors to be used for replacement purposes in commercial refrigeration and air conditioning equipment will be found in Order P-126.

Another point that should be noted is that according to paragraph (b) (10) of order L-123, no preference rating is required "when a fractional horsepower electric motor or generator is delivered to a household or other user solely for replacement of a used one which needs repair, and the seller, in accordance with his regular business practice, takes the broken down or defective motor or generator in trade and repairs it or delivers it to another person who will repair it (whenever repair is practicable) so that it will be resold under similar conditions (or scraps it promptly when repair is impracticable).

(It must be noted that no repairman or other person may deliver such an item unless he either complies with the foregoing conditions, or receives a AA-5 or higher rating for the delivery from his customer, even though he has obtained the items under a regulation or order which assigns a rating for repair or maintenance purposes, such as the following: CMP Regulations 5, 5A, or 9A; or Orders L-79, P-126, or P-148.)

"This exemption permits a dealer not having repair facilities to deliver such a trade-in motor or generator if it is repairable, to the manufacturer or some other supplier who will repair it or have it repaired within a reasonable time, and get one in exchange without an AA-5 or higher rating. The manufacturer or other supplier who is asked to deliver a new item to a dealer in exchange for a used one is responsible for determining if the traded-in item is repairable."

Refrigeration and Air Conditioning

Special circumstances under which commercial refrigeration and air conditioning service shops may use AA-1, AA-2, or AA-5 ratings to purchase items that need and permit a rating, are explained in Order P-126. Additional rules as to the types of repairs which may be made are stated in Order L-38. Note that List B of Priorities Regulation 3 restricts deliveries of this equipment except when made in accordance with L-38.

With respect to repair materials for domestic mechanical refrigerators, refer to CMP Regulation 9A, although repair materials for commercial refrigeration and air conditioning may also be bought under CMP Regulation 9A.

Solder

For the various kinds of solder, the percentage of tin content by weight that may be purchased on certification for the maintenance and repair of refrigeration equipment, radio and radar equipment, electric motors and generators, and electrical appliances and equipment, refer to Schedule I of Order M-43.

Radio Repair Parts

"MR" radio tubes, which are usually the only kind available for civilian repair and replacement purposes, are at present on a voluntary allocation basis from manufacturers to wholesalers to dealers or repair shops, and preference ratings of use orders for the domestic market are not necessary under WPB Order L-265, which governs the distribution of radio tubes and repair parts.

Radio repair shops should become particularly familiar with this order because of the certifications it requires them to use when ordering tubes and parts, and the restrictions it puts on their use. The rating assigned by CMP-9A may not be used for certain radio repair parts which are listed in the order.

Repair Parts and Materials in General

No rating should be needed or used for most repair parts, as these are (Concluded on Page 11, Column 1)

It's a postwar Promise

...from

Admiral

Home on the Range
—is due for a change



Tune In: CBS, 2:30 pm EWT, Sundays
for Admiral "World News Today"

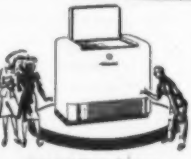
Yes, there'll be some exciting postwar changes made in Admiral electric ranges. There'll be absolutely new features and many improvements on prewar features. All these advances will be based on the findings of surveys made among American housewives. There'll be advances in style and design, in cooking performance and in value. There'll be less sales resistance for you to overcome, with every model a winner. Get the Admiral electric range story now from your Admiral distributor.



Admiral Radio-Phonograph



Admiral Dual Temp Refrigerator



Admiral Home Freezer

Admiral Corporation

CHICAGO 47,



Repair Shop Must Find Right Priority For the Particular Job

(Concluded from Page 10, Column 5)

usually on a voluntary allocation basis from manufacturers to wholesalers to dealers and repair shops.

If a repair shop needs to obtain other-than-controlled materials or other items or products that need and permit a rating, it should consult CMP Regulation 9A regarding the use of an AA-3 rating for civilian repair materials; and the way to be assigned an AA-2 rating for industrial repair materials.

The items on List B of Priorities Regulation No. 3 may not be obtained with blanket MRO ratings, such as the ratings given by CMP Regulation 5 and CMP Regulation 5A. CMP Regulation 9A also states that its ratings may not be used to purchase any of those List B items; and, in addition, lists certain civilian radio items and paint that may not be purchased with the AA-3 rating assigned by that regulation. In an emergency, to get a rating for a List B item, file Form WPB-541, (formerly PD-1A), with the nearest field office, or whatever special form the field office requests.

Repairmen and electricians should note that there are certain kinds of work they may not do with materials purchased under CMP Regulation 9A, such as supplying new connecting or attachment cords where the old ones may be patched or repaired; the assembly of new connecting or extension cords; the addition of wiring in homes or buildings that is not strictly maintenance or repair; and the conversion of a vase or other object into a lamp.

Due to the needs of our armed services, some repair parts and some kinds of materials are bound to be scarce and hard to obtain. In such cases, two possible remedies are suggested. First, repair shops should keep in close touch with their principal sources of supply. Second, they may find it advantageous to do some shopping around among various supply sources.

Use of Customers' Ratings for Maintenance and Repair Work

There are two WPB regulations which should be known by firms doing maintenance and repair work—particularly contracting, such as building, electrical, heating and ventilating, plumbing, sheet metal, etc. These are CMP Regulation 5 and CMP Regulation 5A, which provide priorities assistance for many repairmen's customers to obtain material for the customers' maintenance, repair, and operating supplies. Sometimes the contractor can use these methods on his customers' behalf.

Many firms and businesses listed in these regulations are assigned MRO allotment symbols to purchase controlled materials, and also AA-1, AA-2, or AA-3 ratings to purchase other materials or products that need a rating. These are only for the upkeep of their own facilities—not for use as production materials in making things for others—and certain quantity restrictions are prescribed.

Firms not listed in the regulations are assigned a rating of AA-5 for maintenance, repair, and operating supplies, but must apply on a WPB-541 (PD-1A) application for the right to use the MRO allotment symbol to purchase any form of controlled material for maintenance and repair of their own plants.

Contractors and repair shops doing maintenance and repair work for any of these firms usually have the privilege of using their customer's allotment symbol and preference rating to obtain the materials needed for the work as specified in paragraphs (g-1) of CMP Regulation 5 and (h) (2) of CMP Regulation 5A, but may prefer to operate under CMP Regulation 9A.

To avoid misunderstanding of the terms "maintenance" and "repair" the definitions given in CMP Regulation 5 are given here. These definitions apply in all cases except where an individual order contains a special definition:

"Maintenance" means the minimum upkeep necessary to continue a facility in sound working condition, and "repair" means the restoration of a facility to sound working condition, when the same has been rendered unsafe or unfit for service by wear and tear, damage, failure of

parts, or the like: *Provided*. That neither maintenance nor repair shall include the improvement of any plant, facility, or equipment, by replacing material which is still usable, with material of a better kind, quality, or design, except as provided in paragraph (b) (3) of this regulation."

All of this means that contractors and repair shops, before obtaining the needed materials for a maintenance or repair job, should check CMP Regulation 5 and 5A to see if the work they are going to do is for a business listed in either of them. If so, it may be to their advantage to use their customer's MRO allotment symbol, where permitted, and preference rating instead of CMP Regulation 9A, because of the different restrictions on the quantities of material that may be purchased, and sometimes a difference in the rating. The latter regulation is more helpful for civilian maintenance and repair work, and relatively small jobs for such businesses as stores, hotels, apartment buildings, theaters, restaurants, etc.

A judicious use of these three regulations (CMP 5, 5A, and 9A) gives contractor and repair shops a very convenient and flexible combination.

A repairman may use up to \$25 worth of material purchased under CMP Regulation 9A to install any unit of cooking, plumbing, heating, or used air conditioning or refrigeration equipment, according to Direction 2 of CMP Regulation 9A, issued Feb. 26, 1944. Permission may have to be obtained by the owner of the building under L-41 if he cannot have the job done under his annual allowance for minor jobs.

Tools and Special Equipment

CMP Regulation 9A provides for the purchase of materials and items needed by repair shops for their maintenance and repair work for others and, incidentally, for the maintenance and repair of their own shops. The capital equipment of shops, including special tools, is obtainable in other ways.

Repair shops not listed in CMP Regulation 5 are assigned an AA-5 preference rating by that regulation which may be used in accordance with the regulation to purchase those tools and equipment.

Electrical and mechanical repair shops for industrial, commercial, and agricultural equipment; and public, industrial, and commercial transportation equipment are listed in CMP Regulation 5 and assigned an AA-1 rating and an allotment symbol for this purpose.

In both of the above cases, the form of certification prescribed in paragraph (d) (3) should be included in the purchase orders.

Shops servicing commercial and industrial refrigeration or air conditioning equipment should consult Order P-126 about buying necessary service tools.

Employees of a person who has been assigned a rating of AA-2X or higher for maintenance, repair, and operating supplies, who want to purchase hand tools, gauges, tool boxes, and certain safety items which the employer requires the employees to have for exclusive use in his business should refer to Direction 4 to PR-3.

Many kinds of hand service tools may be purchased by repair shops from wholesalers without a preference rating, because the restrictions of the current WPB Order E-6 apply only to purchases from manufacturers. Some wholesalers obtain ratings for such purchases by filing WPB 547 (PD-1X) applications, and they are expected to sell items obtained that way to their customers, subject to rated orders, without asking for ratings.

Certain light power-driven tools which are listed in WPB Order L-237 and portable electric tools listed in Schedule I to WPB Order L-216 may not be sold by producers or suppliers except on rated orders.

If a rating is needed to purchase tools or special equipment, and the repairman needs a higher or special rating for that purpose, a WPB-541 (PD-1A) application may be filed with the nearest WPB field office. However, certain kinds of radio equipment require the filing of an application on Form WPB-3243, and the nearest WPB field office should be consulted about this.

List of the Principal WPB Orders Controlling Products And Materials Used by Electrical Repairmen

Small Air Circuit Breakers .. L-300
Busway or Busduct L-273
Copper Wire for Retailers .. CMP-9
(Suspended 2-15-45 until 6-30-45)
Copper Wire and other
Material for Repairmen CMP-9A
Copper Restrictions M-9-3 & M-9-c-4
Excess, Idle or Surplus
Materials and Products PR-13
Motors, under 1 hp. L-123
Motors, 1 hp. and up L-221
Motor Controllers L-250
Radio Tubes and Parts L-265
Refrigeration and Air
Conditioning Service P-126 & L-38
Secondary Distribution
Equipment: Safety Switches,
Breakers, Panel Boards,
Service Entrance
Equipment L-315
Electrical Appliances L-65
Electric Ranges, Domestic .. L-23-b
Elevator and Escalators L-89
Fans, Blowers, Exhausters .. L-123
Portable Fans L-176
Fluorescent Lighting
Fixtures L-78
Fuses L-161
Maintenance, Repair,
and Operating
Supplies CMP-5 & CMP-5A
Refrigerators, Domestic,
Mechanical L-5-d
Steel Restrictions M-126
Tools: Hand Service E-6
Light Power-Driven L-237
Universal Portable
Electric (Schedule I) L-216
Vacuum Cleaners (Domestic) L-18-b
Wiring Devices L-277

Summary of Suggested Ways for Contractors and Non-Industrial Repair Shops to Obtain Materials For Their Maintenance and Repair Work

Nature of Work	How to Obtain Controlled Material Items	How to Obtain Other Material and Items Needing a Rating
1. For businesses specifically listed in CMP Regs. 5 and 5A	By using customer's MRO Allotment Symbol, See (g-1) of CMP Reg. 5 and (h) (2) of CMP Reg. 5A	By using customer's MRO rating. See (g-1) of CMP Reg. 5 and (h) (2) of CMP Reg. 5A
2. For businesses not specifically listed in CMP Regs. 5 and 5A.	(1) For larger maintenance and repair jobs Customer may file WPB-541 for right to use customers' MRO Allotment Symbol. See (j) of CMP Reg. 5 and (k) of CMP Reg. 5A. Repairmen can use Allotment Symbol of CMP Reg. 9A if he wishes. (2) For small maintenance and repair jobs By using Allotment Symbol of CMP Reg. 9A	By using rating assigned by CMP Reg. 9A By using rating of CMP Reg. 9A
3. For civilian, maintenance, and repair work	By using Allotment Symbol of CMP Reg. 9A	By using rating of CMP Reg. 9A
4. For industrial and commercial refrigeration and air conditioning equipment	By using MRO symbol of P-126 (Allotment symbol of CMP Reg. 9A may be used if repairman wishes.)	By using proper rating of P-126 (Preference rating of CMP Reg. 9A may be used if repairman wishes.)

In all cases the prescribed form of certification should be used.

"Jim's got it easy doing door-to-door selling!"



Jim: Naturally, madam, you are interested in the only truly "complete" refrigerator.
Customer: I've waited so long I certainly want nothing but the latest.

Jim: Notice these two refrigerators are almost identical. Latest mechanical improvements. Compartments contain same amounts of foods.
Customer: They look pretty much like all the refrigerators I've seen today.

Jim: (Raises door shade on Shelvador*) Here is the big difference—
Customer: Shelves—built right in the door! How wonderful! It's like opening two refrigerators!
Jim: Exactly, madam. The Crosley Shelvador* brings twice as much food to the front within easy reach!



SEEING is Believing

To sell something effectively... show it!... demonstrate it! What could be more quickly convincing than this simple demonstration of the vast, extra value of the Crosley Shelvador* double, front-row storage space? And the Shelvador* Demonstration Shade (available to you soon) dramatizes this extra value!



Remember, every Crosley product, household appliances or radio, gives your customers extra advantages and features they can see, or feel, or hear!—and features you can demonstrate!

CROSLEY
THE CROSLEY CORPORATION, CINCINNATI, OHIO

And so another Shelvador* owner is added to your selling force! She'll convince her friends, just as you convinced her—by actual, visual demonstration. And they'll want to know where she bought hers. That's where you come in—profitably.

*Reg. U. S. Pat. Off.

Radios: Radio-Phonographs: FM: Television: Short Wave: Electronics: Radar: Refrigerators: Household Appliances: The Crosley Car: Home of W.L.W., "The Nation's Station"



Field Engineering

Manufacturers know that many refrigeration and air conditioning installations pose problems in application engineering new to the dealer or contractor. NRSJA Jobbers function as the local engineering counsellors for the manufacturers whose lines they handle. The jobber broadens the local market, and acts as the listening post for the manufacturer seeking new ways of serving the industry through introduction of additional products.

NATIONAL REFRIGERATION SUPPLY JOBBERS ASSOCIATION

Dependable Distribution

Paramount Building - - Cincinnati, Ohio

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

back with a chest loaded with ribbons and medals, for he was cited often.

In one of the most beautifully written and moving letters of its kind we've ever seen, Mac's close buddy and commanding officer, Lt. Comdr. T. P. Mulverhill, broke the news to Nash-Kelvinator's Ed Seibert. We quote from that letter:

Dear Mr. Seibert:

I have a note before me from H. M. McGaughey—or Mac, as we called him, which says "Tom: write these people if I get knocked off."

Mac went out on a routine patrol Feb. 17, 1945, and was never seen again. At 1400 we received a message from him saying he had just attacked and sunk two troop barges off Sarawak, Borneo. Some time later a message was received giving his E.T.A. and stating he was half

way home to base. He never returned.

We searched for him for two days, but on the 20th we received the following message from guerilla forces on Palawan: "Confirm shooting down Navy Liberator bomber outside Puerto Princessa Harbor Palawan—five miles north on reef. Aircraft burning in air and exploded upon landing—13 bodies unable to recover due presence enemy."

Mac's patrol area was on the west side of the island, but we had all been coming up the east side and taking a crack at the enemy sea plane base there. The Jap is canny and some of us had been in and out of the harbor with little storm. But they must have been ready for Mac.

Mac and I came out here together to do our bit and to do as much to the slimy Jap as possible. Between

us we had raised merry hell plenty of times. We were getting to be short timers and about to be relieved. Losing him was a shock to me. We had so many future plans here and at home, it left me at loose ends.

When I became C.O. and he became X.O. we were unable to fly on the same days and our dual excursions were eliminated, so I threatened to ground him if he didn't slow down. All that did was antagonize him.

It's hell out here, not enough fresh foods, hard living conditions, equipment deteriorating because of the climate, but the patrols going on every day. Our squadron has an enviable record, but it has been won by losses hard to take. We have been recommended for the Presidential citation largely through the efforts of such men as Mac.

We all bargain for death out here. Our brushes with the enemy are at first terrifying, then become commonplace. Finally, in due course we are relieved, but in some squadrons that point comes before it does in others.

We have no regrets—we both squared our lives away for such an occurrence, so I know he was ready. It's just hard to remember and, realizing how much he enjoyed life, his future with the experiences of the last few months behind him would have been great.

I've tried to give you a picture of the situation. If there is anything more you would like to know, write me and I'll try to give you the dope. I am due to be relieved some time soon, if I make it, at least I'll try to call on you.

Advertising the Surpluses

Treasury's Office of Surplus Property, a disposal agency designated by the Surplus Property Board, has announced its plan for selecting its advertising agency.

Agencies throughout the country are being invited to submit written presentations before April 28, if they are interested in competing for the Office of Surplus Property account. From those agencies making written presentations a few will be selected and asked to make oral presentations. The successful agency will be chosen from the latter group.

Space advertising is certain to assume considerable importance in future disposal operations, and it is for this reason that the services of an advertising agency are being sought at this time.

Although plans call for only one agency at present, it may be that other agencies will be used on occasion. It may be found expedient, for example, to use additional agencies in connection with local or regional advertising campaigns.

Retaining the services of an advertising agency by Treasury's Office of Surplus Property is one more step in its program aimed at giving full publicity to all offerings of surplus property and the results of such offerings.

Interested agencies in our field please note.

NOTICE!

JOBBERS and DEALERS NEW LOW PRICES

JOBBERS and DEALERS!
Handle the money-making AMCOIL line in your area. Write today for details of our attractive line of cooling units—a few localities are still open to qualified jobbers.

A RARE COMBINATION

The highest quality at lowest prices

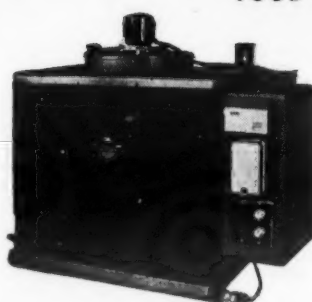
New price list is due to our ability to improve manufacturing methods and install automatic machinery.

Prices effective as of April 1, 1945 and supersede all previous lists.
They are subject to change without notice.

COMPARE OUR QUALITY—DESIGN—NEW INVENTIONS—IMMEDIATE DELIVERY

FOOD CONDITIONER COOLING UNIT

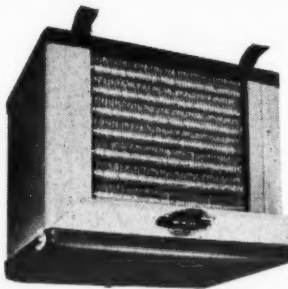
Automatically preserves foods without dehydration. Temperatures from 36° to 40° F. For reach-in and walk-in coolers.



MODEL	BTU/HR 15" MTD	LIST PRICE
RIF 38	4,600	\$270.00
RIF 43	5,300	283.00
OCF 56	6,300	290.00
OCF 82	9,200	325.00
OCF 126	13,000	550.00
OCF 166	19,500	590.00
FC 30	7,500	333.00
FC 80	11,300	378.00
FC 130	17,000	601.00
FC 160	22,600	641.00

ALSERVICE OPEN FACE UNIT

For efficient cooling and serves as a general utility unit in preserving foods where a forced draft cooling unit is required. Streamlined, in attractive grey and black colors, it produces temperatures down to 36° F.



MODEL	BTU/HR 15" MTD	LIST PRICE
OC 44	4,000	\$120.00
OC 48	5,100	148.00
OC 58	7,500	161.00
OC 84	11,000	210.00
OC 128	15,500	322.00
OC 168	23,000	370.00

ZERO-BREEZE LOW TEMP UNIT

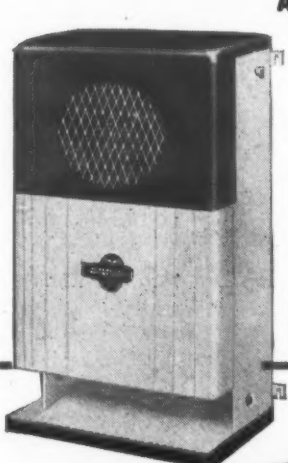
A low temperature unit equipped with automatic electric defrost . . . wall-mounted model . . . produces temperatures from +20° F. to -20° F. . . defrosts automatically on each off-cycle of conditioning unit.



MODEL	BTU/HR 10" MTD	LIST PRICE
RZB 60	3,900	\$325.00
ZB 120	7,250	425.00
ZB 150	11,000	615.00
ZB 180	14,500	655.00

ALSERVICE REACH-IN PANEL UNIT

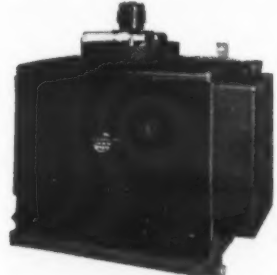
A compact cooling unit for all utility refrigeration applications. Designed to meet a growing demand for medium capacity units to balance condensing units of 1/4, 1/2, 3/4 or 1 HP. Especially adapted for reach-in and small walk-in boxes.



MODEL	BTU/HR 15" MTD	LIST PRICE
RI 15	2,000	\$ 94.00
RI 25	2,250	99.00
RI 30	3,000	114.00
RI 40	5,250	149.00
RI 45	6,150	169.00

ALSERVICE DOWN-DRAFT UNIT

An efficient, down-draft cooling unit employing new ideas in refrigeration. . . May be converted to controlled humidity Food Conditioner by adding the control assembly package.



MODEL	BTU/HR 15" MTD	LIST PRICE
UC 63	8,000	\$211.00
UC 100	12,500	261.00
UC 123	17,500	477.00
UC 200	24,000	517.00

Each of these AMCOIL models are now available and can be purchased from your jobbers' stock, or can be shipped from our factory. Priority MRO or AAS under limitation order L38 must accompany your order. **READY FOR IMMEDIATE DELIVERY.**

LICENSED UNDER

Latent Color Patents
Patent Pending

MANUFACTURER'S REPRESENTATIVES

John J. Madden, 212 Madison St., Dedham, Mass.
J. E. Oliphant & Co., 505 Uhler Bldg., Marion, Ohio
Richard Barthelme Sales Co., 1711 Challen Ave., Jacksonville, Fla.
F. M. Eversden & Associates, 220 So. 16th St., Philadelphia 2, Pa.
Jordy Engineering Co., Inc., 813 Howard Ave., New Orleans 13, La.
P. J. Burrill, 800 North Clark St., Chicago, Ill.
Robbins-Greenwood Co., 3104 Main St., Houston 4, Texas
The Mac Silver Co., 114 No. Sweetzer Ave., Los Angeles 36, Calif.

AMCOIL



AMERICAN COILS CO.

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Pad is adjustable to all makes and sizes of refrigerator cabinets; thoroughly protects finish of cabinet from scratches and marks during moving; easily and quickly put on or off; sturdy, lasting construction; easily pays for itself in a short time. Price \$11.75 each.
Attractive lettering of your name on pad at \$2.00 each extra.
For carrying your refrigerator move safely and easily, use the Mastercraft Adjustable Carrying Harness which is a separate unit from the pad and priced at \$8.50 each.
Write for complete folder and prices on pads for refrigerators, washers, ironers, ranges, radios; also furniture pads and protective covers. . . All prices subject to change without notice.

BEARSE MANUFACTURING CO.

Incorporated 1921

3815-3825 Cortland St., Chicago 47, Illinois

To Lead Interprovincial R.S.E.S.



Officers and some of the directors of the Interprovincial Association of R.S.E.S., pictured during the recent conference in Montreal. Back row: I. to r.: O. B. Frayne, Toronto, director; W. J. Marshall, Toronto, past president; W. Podd, Ottawa, director; A. LaFlamme, St. John, N.B., director; G. Larlee, Edmundston, N.B., director. Front row: E. G. McCracken, secretary; A. J. Pike, St. John, second vice president; W. Sneath, Toronto, incoming president; Charles Pigeon, Montreal, first vice president; G. Condie, Toronto, treasurer.

Canadians Elect Officers, Report Growth

MONTREAL, Canada—W. Sneath of Toronto was elected president of the Interprovincial Association of R.S.E.S. at the recent annual conference here, and Charles Pigeon of Montreal was elected first vice president.

Other officials include A. Pike of St. John's, second vice president; E. G. McCracken, Toronto, secretary; G. Condie, Toronto, treasurer; and G. Dowling, Calgary, sergeant-at-arms.

Directors elected included: for Nova Scotia, W. L. Mullinger, C. Treadwell; New Brunswick, Alfred Laflamme, George W. Larlee; Quebec, J. D. Ross, L. D. Tremblay; Toronto, O. B. Frayne, D. Fowler; Calgary,

H. R. Dickinson, C. F. Kloeffer; Ottawa, W. Podd, H. Arthur.

E. G. McCracken, in his secretary's report, pointed out that the Interprovincial Association is the coordinating factor for the various Canadian chapters of R.S.E.S., and thus has worked as a unified force in the matter of priorities, selective service deferments, and other wartime problems.

There are now some 400 members in the association, of which 57 are "commercial" members (do not engage in service). The Mount Royal Chapter, he declared, has increased its membership to nearly the 100 mark, pushing close to the number in the Toronto chapter.

Service Engineers Who Plan To Be Dealers Might Ask Themselves—

MONTREAL, Canada—Refrigeration service contractors who are planning to go into merchandising have a "rare opportunity" because of the wartime service they have rendered, but before going too far the service man should ask himself some soul-searching questions, Paul B. Reed, manager, refrigeration and air conditioning division, Perfex Corp., told members of the Interprovincial Association at their conference here.

"You have a great opportunity," he told them. "You are now about the only direct contact with the user and the potential customer that the industry has had for several years."

"You know who needs a new machine, the type wanted, and about how much the customer will want to spend. If you have to take his equipment in on trade, you know what will have to be done to it and at what cost, and you will have some idea of its resale value. Manufacturers are making expensive surveys to find out these things that collec-

tively the service contractors know. "But before you decide to get into the selling end of the business, ask yourself—

"What do I know about being a dealer? Can I give the customer the service to which he is entitled? Am I in a position to fulfill my guarantees to the customer? Am I going to stay in business or drop out and go to work for someone else?"

"If you cannot honestly answer these questions satisfactorily, then stay out of the selling and stick to the service business. Perhaps you may make a little less money, but you may have more fun in doing the work that you like best and for which you are best fitted."

Mr. Reed told the service contractors that they have a duty, both individually and in their organized activity, to the veterans of this war.

"If you have a former employee in the service, perhaps you can enlarge your business to give him his proper place. Design your program to fit his needs."



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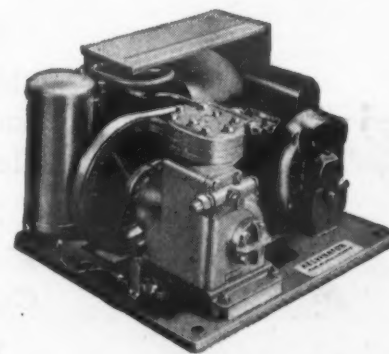


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Growth of 'Community Refrigeration Center' Indicates That Public Is More Aware of What Cooling Processes Can Accomplish

'Centers' Offer Lockers, Freezing, Ice, Storage

By Terry Mitchell, M.E., Frick Co., Waynesboro, Pa.

Hospitals have increased rapidly in number partly because they provide complete medical service, at one place, for the sick. Apartment houses are in such demand because they offer practically all the conveniences of home to so many people, under one roof. The great department stores, mail-order houses, the chain stores, big hotels, luxury liners, many manufacturing plants, and scores of other businesses succeed because the services they supply are, each in its line, complete.

A "community refrigeration center" is a plant which provides a town and the surrounding country with the most complete possible cooling service. This refrigeration service may include a dozen or more activities, but they can be grouped under four main headings: ice-making and ice delivery; cold storage of various products; quick-freezing and other low-temperature work; special jobs such as fruit packing and precooling, food processing, pipe line refrigeration, etc.

Most of the "centers" developed thus far began as ice manufacturing plants which later added cold storage rooms, then offered lockers and quick-freezing service, and now supply "cold" in whatever form it is

needed by the community. An ice plant already has most of the buildings, equipment, and experience required for such a program.

The response by the public, not to mention the food industries, has been a revelation even to the pioneers who built up the first of these "centers." Everyone knows that the 6,500 ice plants in this country are playing a vital part in maintaining the war-time food supply. It is common knowledge that without cold storages and iced refrigerator cars our big cities would starve.

But who would have thought that refrigerated food locker plants would mushroom in a few years until they now outnumber the ice plants? Who could have believed that frozen foods would be so in demand that one New Jersey plant finds a ready market for its production of a million pounds a day?

It's the same story everywhere: refrigeration is now used in over 200 essential ways. People have become very refrigeration-conscious. They soon learned what "cold" could do for them. Fishermen carry tons of crushed ice in the holds of their trawlers, for cooling the catch.

Farmers find milk brings a premium price if promptly cooled with the aid of ice or a small refrigerating unit. They also demand cold storage facilities for fruits, vegetables, and meats.

Many more food packing and precooling plants are needed. Within a few years we shall see hundreds of new quick-freezing systems installed for handling foods in bulk—just as we now have canneries everywhere. These local freezers will revolutionize the distribution of fresh foods.

City people want—and will pay well for—a cold place in which to store furs. They like refrigerated food lockers almost as much as farmers do; in Oklahoma City nearly 10,000 lockers are rented. Such commercial cooling services as freezing ice cream, ripening bananas, supplying cold water for bottling plants, doing chemical process work, and air conditioning, are all in growing demand. All can be undertaken by a central plant, with the aid of pipe lines where required.

A check on the actual experience of several "community refrigeration centers" will show just how this idea of a complete cooling service at one place is taking hold.

Greencastle, Pa., is a country town of 2,500 people. An ice plant of only 10 tons capacity a few years ago, the Green castle Ice & Cold Storage, Inc., was about to go into the hands of receivers when it was taken over by a new and progressive management.

Two salesmen were at once employed to sell its services, which were broadened to include country ice routes, the sale of modern ice refrigerators and milk cooling cabinets, the storage of apples, and the wholesaling of beer.

A little later the plant added locker service, with quick-freezing and meat-aging rooms, and began chilling freshly killed calves and lambs—of which it now handles 4,000 head a month.

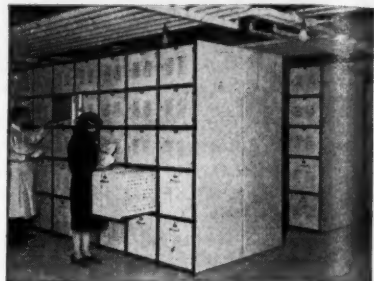
A fruit packing plant was then built, with grading machinery for apples, peaches, strawberries, etc. This includes half a dozen large tanks which are filled with ice water for precooling cherries before they go through the pitting machines.

Last season 600 tons of cherries were packed and frozen at the plant; (Concluded on Page 15, Column 1)

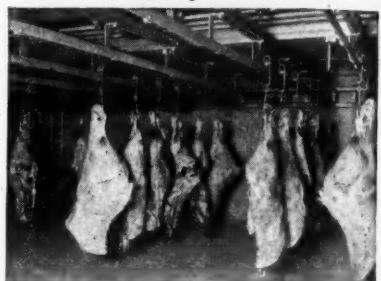
In Lancaster, Pa.



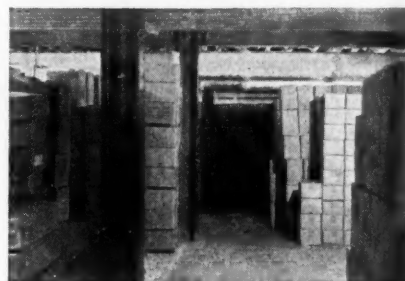
One of the things that makes the Consumers Ice & Coal Co. of Lancaster, Pa., a "community refrigeration center" is this processing room for the convenience of locker patrons.



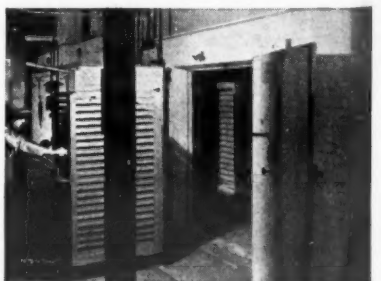
In addition to the 2,200 lockers in the main plant at Lancaster, three locker substations are located in nearby towns.



Both meat chill and ageing rooms are included in the Lancaster "community refrigeration center."



Preparing and freezing foods commercially is a big operation in the Lancaster "center." Storage facilities for 3,000,000 pounds are provided.



The heavy quick-freezing load at the plant is handled by four Frick "blizzard" freezers. Here food is being moved into freeze room.



As part of its commercial frozen food business, the Lancaster "center" includes this food packaging department.

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Quick-Freezing Angle Highly Important In Center's Operation

(Concluded from Page 14, Column 4)

the quantity gets bigger each year. Corn, prunes, elderberries, condensed milk, and other products are held in freezer storage for brokers all over the East.

A retail store was opened where ice cream, soft drinks, and lunches are served. A milk distributor uses one of the cold storage rooms as a sub-station. Cream is frozen and stored in great quantities for the use of ice cream plants, which also take large amounts of frozen berries and other fruits.

Practically the entire first floor of the Greencastle cold storage is now given up to freezer space. The government uses much of this for freezing and keeping shelled eggs, poultry, overseas bacon, pork loins, ham, and beef. The two floors above hold 100,000 bushels of apples and other fruit. Car icing, together with country and city deliveries, takes up to 80 tons of ice a day.

The plant is a very busy place; trucks are arriving, loading, or unloading, and departing constantly, all day and much of the night. The quick-freezing of locally grown fruits and vegetables in large quantities is the next logical step—would now be in operation but for the war.

The quick-freezing angle has already been developed to a high degree by the Consumers Ice & Coal Co. at Lancaster, Pa. This "community refrigeration center" supplies cooling service to more than 2,500 customers.

The plant has been making ice for over 40 years; it now produces 90 tons daily, operates town and country routes, and ices refrigerator cars; but ice comprises only one fifth of its business!

Its locker system is one of the largest and finest in the country. This is complete with the most modern processing equipment, and with meat chilling and aging rooms, as well as a quick-freezer, all for the use of the renters of its 2,200 lockers. The plant operates three locker sub-stations in nearby towns.

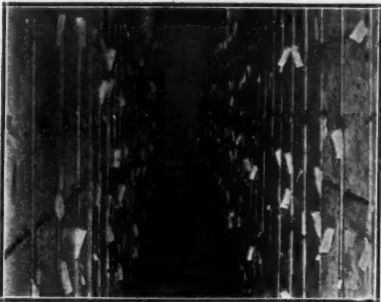
Thousands of pounds of locally grown fruits and vegetables are cleaned, graded, quick-frozen in bulk, packaged, and sold under the "Consumers" label, each season. Four double "blizzard" freezers handle this quick-freezing load. The six freezer storage rooms hold three million pounds of various frozen foods. Plans have been completed for extensive enlargement of the quick-freezing work.

Fresh fruits in quantities up to 75,000 bushels are stored, not to mention carloads of such varied products as cheese, cream, cabbage, meats, potatoes, chemical compounds, etc. This Lancaster plant is obviously a very busy place also.

A third large "community refrigeration center" is exemplified by the Diamond Ice & Coal Co. at Charleston, W. Va. This city has a population of 75,000. The plant was established in 1883, and originally had an ice-making capacity of 10 tons daily.

At present it makes 150 tons of ice a day, and operates a 5,000-ton ice storage. It has five country ice delivery routes, 23 town routes, handles railway car icing, and has created such a market for crushed and sized ice that these now represent 25% of its ice sales.

In Greencastle, Pa.



Locker plant of the Greencastle, Pa., Ice & Cold Storage, Inc., serves some 1,200 customers.



Fruit from its own packing plant is kept in this 100,000 bushel storage operated by the Greencastle "center."



Peaches, cream, poultry, shelled eggs, and many other foods are frozen and stored in bulk in the Greencastle plant.

The general cold storage capacity of this plant is 250,000 cu. ft. Fifteen thousand fur coats and other fur garments are placed in its care each year. It keeps 35,000 bushels of apples through the winter season.

The locker room at the Diamond "center" now contains 425 compartments, and is being increased in size as more lockers are rented. The capacity of the freezer storage rooms totals 50,000 cu. ft. Pipe lines carry refrigerated brine to three branch plants operated by meat companies, across the street. Each of these plants handles two or three carloads per week.

Refrigeration is also supplied for the experimental plant of the United Carbon Co. The offices at the plant are air conditioned with the use of ice. In short, this "community refrigeration center" has been able to supply cold for customers in practically any way demanded.

Thus we see that a "community refrigeration center" serves as a reservoir or "balance wheel" for the food production and food requirements of its area. Its usefulness is founded on the preservation of foods on a continuous year-around basis. It also serves other businesses, in addition to the food industries: it may operate an ice skating rink, or do test work, low-temperature drying, or the cold-treating of metals.

The growth of these "centers" is, indeed, part of the great trend by which refrigeration is being applied to an ever-growing list of uses. They are changing "cold" from an enemy of man to one of his most useful servants.

OPA Sets Prices on 2 Makes of Freezers

WASHINGTON, D. C. — Price ceilings on farm and home freezers have been set up by the Office of Price Administration for two firms, the Jack Frost Freezer Co. of Tacoma, Wash., and the Behrenfeld Mfg. Co. of Ghent, Minn.

The Jack Frost freezer is described as Model No. C-22, rated at 22 cu. ft. with ½-hp. condensing unit. On sales to distributors the price is set at \$330; on sales to dealers, \$396; on sales to consumers, \$660.

The Behrenfeld freezer is listed as Model No. 15, rated at 12 cu. ft. with ¼-hp. condensing unit. Price to distributors is \$190; to dealers, \$228; to consumers, \$380.

OPA permits adding to these prices actual crating charges not exceeding \$6 and freight charges.

'Conversion' To Locker Plant Brings Penalty

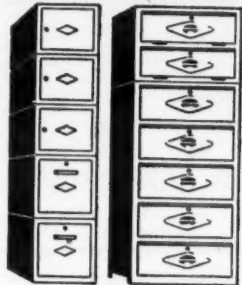
SEATTLE—Unauthorized work on a locker plant here has brought a four-month suspension of priority privileges by the War Production Board to R. E. Rogers, contractor and builder here.

According to WPB, Mr. Rogers began conversion of an existing building into a frozen food locker plant at an estimated cost of \$4,000 without authorization, ordering and using lumber in violation of Orders L-41 and M-208.

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4. Speed up the compressor 5-10%, to handle increased volume of vapor.
5. Maintain dryness of refrigerant, system and lubricating oil at all times. Use DRY Du Pont Methyl Chloride.
6. Don't use Methyl Chloride with die castings, aluminum, zinc or magnesium and its alloys.

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Problems Resulting From Mixing 'Freon' and Methyl Chloride Discussed by Thompson

Pressure-Temperature Relationship Varies, Other Difficulties Arise, Engineer Claims

By R. J. Thompson, Refrigeration Engineer, Kinetic Chemicals, Inc.

This will take up the questions raised by H. J. Wilkinson, Alabama Power Co., Eufala, Ala., regarding mixtures of "Freon-12" and methyl chloride.

There should be no difficulty in using or understanding the method of detecting the presence of methyl chloride in "Freon-12" as outlined in the Feb. 12 issue of AIR CONDITIONING & REFRIGERATION NEWS. It is not expected that test kits will be made up by service men, but that they would be obtained from a pharmacist or some chemical supply house.

The use of the kits by the service man is one of the simplest operations he has to perform and is far from complicated. The complete story and the detailed information given in the Feb. 12 issue was intended to be complete enough so that test kits could be made up by qualified people and the instructions for use by service men were very brief and easily understood.

We have heard and understand that in a number of cases methyl chloride has been added to remaining "Freon-12" in a refrigerating and air conditioning system, but we do not have any complete or accurate information that we consider reliable

as to the performance or operation obtained, either from service men, machine manufacturers, or users.

We have not conducted any laboratory or experimental work on making mixtures of "Freon-12" and methyl chloride or any other refrigerant, and such work is not proposed in any of our programs for the very definite reasons that from our knowledge of compressed and liquefied gases which are used as refrigerants and where they are merely in solution they will cause:

1. Wide fluctuation or variation in the pressure-temperature relationships in the evaporator for the reason that the lower boiling refrigerant in the mixture will be the first to be removed or distilled. This fractionation process will vary between the temperature of the lower boiler and the temperature of the higher boiling refrigerant under the same pressure. In other words, at zero gauge pressure the temperature may vary from -10° to -22° for the reason that the mixture may be rich in methyl chloride and then rich in "Freon-12."
2. Difficulty of liquid regulating valve or capillary tube calibration due to the wide variations in pressure-temperature relationships, superheat value of the refrigerant, and the superheat in the vapor line.
3. Difficulty of accurately metering the liquid refrigerant mixtures through the regulating valve orifice or the capillary tube.
4. Difficulty on the high side of the system as the pressures will not be an average of the two superheated gases but will be a sum of the partial pressures. As a consequence, this will influence calibration of the high pressure cutout and the water valve if used.

We do not know that corrosion products would or would not be produced when using mixtures of refrigerants in one system, but we are led to believe that "Freon-12" and methyl chloride are stable when in the presence of one another. However, it is well established that methyl chloride has a corrosive action on aluminum, die castings, rubber, insulating varnishes or coatings, etc.

The refrigeration and air conditioning industries have always required of us that the "Freon-12" be of extremely high purity in that it must not contain more than 25 parts per million by weight of moisture, no halides to be present, non-condensable gases in the vapor phase to be less than 2% by volume, and that the boiling range be held within the narrow limits of nine-tenths of a degree Fahrenheit. These limits for purity have been established for a very definite reason as mentioned in the foregoing, and this is no time to relax on those requirements as the present conditions do not change the fundamentals, principles, or theories. By adding methyl chloride to a "Freon-12" charged system the boiling range will no longer be nine-tenths of a degree but will be approximately 12°, moisture content will be higher, per cent by volume of high boiling impurities will be considerably higher, and halides will be present.

Until such time that we have received reliable, complete, and accurate data on mixtures, we are inclined to discredit any hearsay of supposedly satisfactory operation. While it may be true that within certain limits of operation, performance, and necessity, a six-cylinder motor car

These Are Questions Asked by Repairman On Mixing Gases

Alabama Power Co.
Eufala, Ala.

Editor:

I was very interested in your article (Feb. 12 issue) for determining the presence of methyl chloride in "Freon" systems. However accurate I believe it is a little more complicated than most service men will attempt, even if they're able to assemble the necessary material in the average town.

I would like to have an expression from someone as to what chemical reaction, if any, takes place in a system containing approximately 20% methyl and 80% "Freon." I haven't discovered any, and except for a slight readjustment of the TXV and control, the system performs as if it was all "Freon," so why disturb it?

Also, would not a greater percentage of mixture be reflected enough in the head pressure as well as in the suction-pressure-temperature relationship to indicate a complete removal and recharge with all "Freon" when available? Also, would not a greater percentage than 20% methyl render the mixed vapor slightly inflammable?

I imagine there are many service men who know the answers, and others, like myself, who would appreciate an article covering these points by some producer of refrigerants or refrigerators.

H. J. WILKINSON

engine, short of three rods, pistons, and pairs of valves, may move an automobile, but how well and for how long? Such work should only be undertaken after full knowledge of the problem and by well informed service men, of which there are many, and with the customers realizing and having been informed just what he is going to obtain.

The foregoing comments refer particularly to making up a shortage of "Freon-12" by addition of methyl chloride to the remaining "Freon-12" in a system. The following will cover the substitution or use of methyl chloride in a "Freon-12" designed system where the entire charge of "Freon-12" has been removed:

The presence of methyl chloride would decrease the capacity of the compressor unit due to the fact that a greater volume of vapor would need to be compressed per minute for the same B.t.u. capacity.

The presence of methyl chloride would cause flooding of the evaporator and short cycling of the compressor unit due to the fact that the orifice diameter in the float or expansion valve or the capillary tube would be greatly in excess of the diameter required to meter the proper amount of refrigerant for satisfactory operation.

The presence of methyl chloride would cause the back pressures to be lower due to the fact that the pressure-temperature relationships of the two refrigerants are not the same, and this would affect calibration of float or expansion valves, capillary tubes, unloading valves, pressure cutouts, etc.

Charging with methyl chloride could cause faulty operation of float valves due to difference in buoyancy of the refrigerant liquids.

The presence of methyl chloride would require a change in the method of leak detection due to the fact that the use of a Halide torch might cause a fire or explosion should flammable or explosive mixtures of methyl chloride be present in a confined or limited space.

Use of methyl chloride would cause possibly a 20% increase in the superheat temperatures.

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- L. P. GAS
- ★
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Home of the Future? Californian Builds His Around Refrigerator

Walk-in Box, With Freezing Compartment, Was Laid Out First In Ranch House Plan

FRESNO, Calif.—Perhaps one of the most unusual California ranch houses to be built in this vicinity is a \$16,000 home "built around a refrigerator."

The ranch house, property of a prosperous grape vineyard grower near Fresno, is located 30 miles from the city, and in a poor position from the gasoline rationing standpoint for food shopping at any market. Consequently, when the owners laid out the plans for the house, plenty of storage and sharp freezing facilities for processed foods and meats was the major consideration.

The job of building capacious refrigeration capacity for the house went to Homer Creley, head of Bonded Refrigeration Co., commercial refrigeration installation and service firm of this city. After studying the plans, Mr. Creley designed a two-way cooler and specialty refrigerator which will hold enough food to last the family for an entire season.

A walk-in refrigerator was laid out first, forming the exact center of the house, with the back wall facing the rear porch, and the left side opening into the kitchen. The dimensions were 8x7x6 for the walk-in section, which was built of heavy 2x6 studding, backed with plywood and six inches of Dry Zero insulation under a metal sheathing. The floor is heavy oak, likewise insulated against Fresno's summer heat.

All the coils were tinned and built in the Bonded Refrigeration Co. shop, and include two banks on the rear

wall purposely placed from floor to ceiling. Directly in front of this is hung a heavy canvas curtain three feet from the coils, and reaching from wall to wall. A temperature drop at this point brings the average 38° temperature down to 18° at this point, cold enough to chill meat thoroughly when hung up between the curtain and coils. The owners, who butcher their own meats, can accommodate a lamb, beef, and pork all in this space.

In one corner of the cold storage space there is a large sharp freezer with dimensions of 40x20x36 inches. Well insulated and provided with a separate 3/4-hp. Copeland compressor and coils, this provides a -35° F. temperature for quick freezing of meats, vegetables, and fruits, most of them produced on the ranch itself.

In the corner of the storage space which faces the kitchen the installers also built a convenient reach-in refrigerator which can be reached from either side—foods likely to be needed immediately being placed in from the rear and drawn out as needed through the front. With a glass door swinging out from the wall, this small unit has coil and trays for freezing ice cubes, six shelves for butter, dairy products, vegetables, etc., and ample capacity for tall bottles or large food items such as watermelons.

Thus answering most of the rancher's food problems in a single location, the ranch house has become something of a showplace in the Fresno area, one which attracts many interested visitors.

Jack North Heads Cleveland League, Directors Named

CLEVELAND—Directors of the Electrical League chose J. E. North as president of the League for the twenty-second consecutive time here recently.

A. F. Head, General Electric Supply Corp. and R. K. Howes, Higbee Co., were elected vice presidents. Harry Hutchisson is treasurer and S. E. Strunk will continue as secretary.

The 1945 directors, who were elected Jan. 2, are L. T. Blaisdell, General Electric Co.; John J. Bohning, Geo. Worthington Co.; W. T. Clark, Cleveland Electric Lighting Fixtures, Inc.; James A. Foukal, Sterling & Welch Co.; Homer G. Frank, Strong, Carlise & Hammond Co.; Carl E. Fruehauf, Fruehauf Hardware Co.; F. G. Hickling, Westinghouse Electric & Mfg. Co.; F. J. Hopperton, Elliott Electric Co.; W. L. Howlett, Westinghouse Electric Supply Co.; Ralph Humbert, General Electric Co.; H. H. Kennedy, Frigidaire Division, General Motors Corp.; F. R. Maguire, W. Bingham Co.; H. L. Martien, Martien Electric Co.; and A. L. Perry, Graybar Electric Co.

Viking Co. Appoints Coast Representative

CLEVELAND—Norman S. Wright & Co. has recently been appointed Pacific Coast representatives of the Viking Air Conditioning Corp.

Norman S. Wright & Co. has served as a manufacturers' representative on the West Coast for the past 41 years. Its founder and president is Norman S. Wright, Sr. Norman S. Wright, Jr. is the general manager of the firm, and E. D. Law is office manager of the San Francisco branch. John M. Haas, Walter H. Page, and Ed Lokey are managers of the Los Angeles, Seattle, and Portland branch offices, respectively.

Goeke Heads Service For Tulsa Wesco

TULSA, Okla.—Appointment of Alfred L. Goeke as service manager of the Tulsa branch of the Westinghouse Electric Supply Co., with headquarters in Tulsa, has been announced by Gaylord Miller, midwest district manager. The supply company is the national wholesale marketing outlet for the Westinghouse Electric & Mfg. Co.

Day & Night Co. Deal With Dresser Okayed

LOS ANGELES—Negotiations have been completed and approved by the stockholders of the Day & Night Mfg. Co., Monrovia, Calif., for the affiliation of that company with Dresser Industries, Inc.

Dresser Industries, composed of a group of companies joined together by common ownership, serves chiefly the gas and oil industries; manufacturing derricks, gas holders, tanks, pumping machinery, compressors, etc.

In the appliance field, the Bryant Heater Co. of Cleveland, has been a member company of Dresser since 1933. The Payne Furnace & Supply Co. of Beverly Hills, Calif., also a recent affiliate, and the Day & Night Mfg. Co. will serve to broaden the activities of the corporation in the appliance business.

The Day & Night Mfg. Co. has been in business in Monrovia since 1909, and has become one of the leading manufacturers of electric water and beverage coolers and gas water heaters.

U. S. Gauge Co. Changes Chicago Offices

SELLERSVILLE, Pa. — U. S. Gauge Co. announces the relocation of its Chicago office to the Monadnock Block, 53 Jackson Blvd. The Chicago office will be under the direction of Walter H. Magee, district sales manager.

WHEN YOU NEED PRECISION-BUILT SMALL PUMPS . . . Specify TUTHILL

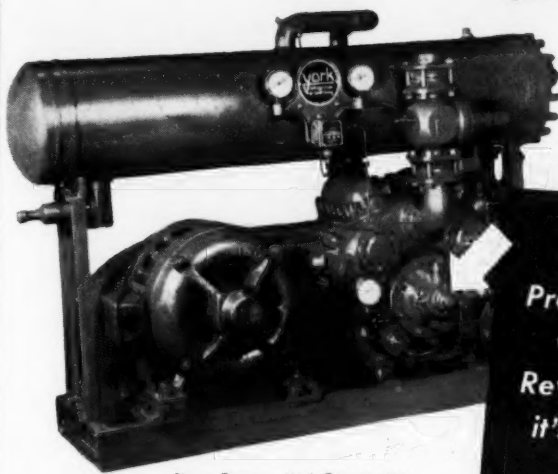


Photo Courtesy York Corporation

For "Built-in" Pressure Lubrication with Automatic Reversing Pump . . . it's MODEL RCSA

Illustration shows this Tuthill automatic reversing pump built into the machine for pressure lubrication. Model RCSA delivers from same port regardless of direction of shaft rotation — is practical on reversing machinery and on equipment of which ultimate rotation is not known at time of shipment. Sizes from 1 to 50 g.p.m. Pressures up to 100 p.s.i. Write for Model S Bulletin.

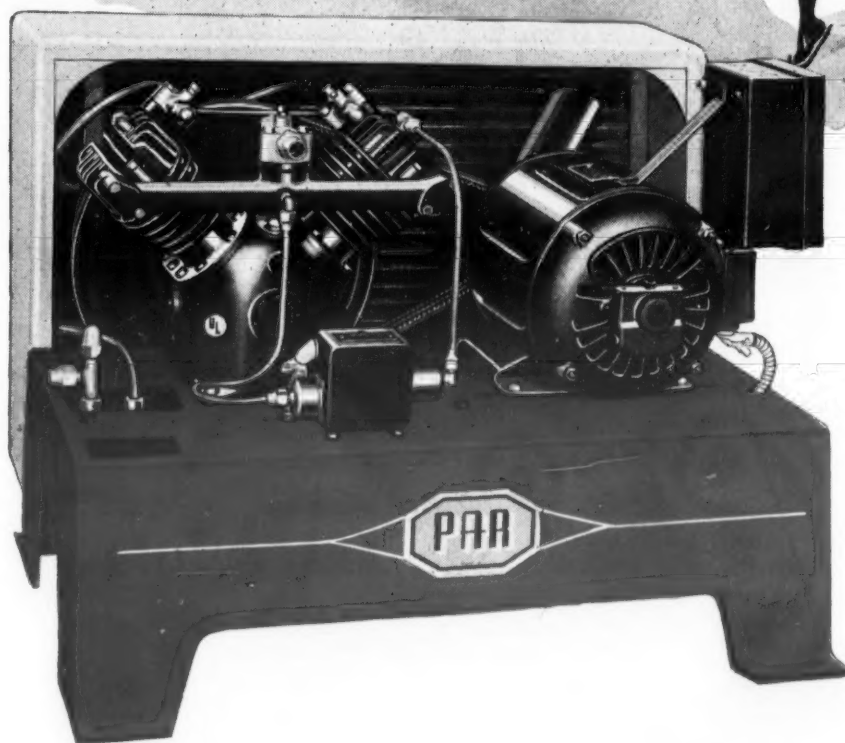
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that make the
BIG DIFFERENCE

PAR BY Lynch



Compare the PAR Condensing Unit line and you will quickly see why Par enjoys such unusual popularity in the refrigeration field . . . note the Par Extras that make the big difference. These sturdy built, compact units have many outstanding features of construction that make for extra years of economical, efficient operation . . . streamlined in design and manufac-

tured as complete condensing units, not an assembly of parts bolted together . . . and a complete range of models and sizes from 1/6 h.p. to 2 h.p. air-cooled units and 1 h.p. to 5 h.p. water-cooled units. See these units at your PAR Jobber . . . ask for complete details on Par Extras or write for illustrated Par catalogue R-96 and supplement R-96A.

PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Supply Jobbers!

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MEANS
"EXIT ICE"

**COMPLETELY ELIMINATES
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ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems... The dependable liquid anti-freeze.

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JOBBER: WRITE FOR SPECIAL PROPOSITION!

Refrigeration Service Firms May Play Bigger Role In Sale Of Household Boxes

McDermott of RSES Declares That Manufacturers 'Count Them In' on Postwar Distribution Plans

MONTREAL, Quebec—While there probably won't be the kind of radical changes in the distribution of household mechanical refrigerators that have been predicted in some quarters, there may be some new trends evidenced and one of the most likely is the greater use of independent refrigeration service men in selling refrigerators.

That was the prediction made by H. T. McDermott, international secretary of the Refrigeration Service Engineers Society, in his report on a "Complete Survey of the Domestic Refrigerator Field" made before the recent annual conference of the Interprovincial Association of R.S.E.S. in Montreal.

The following facts about the manufacturing end of the household refrigerator field "seem certain" for the period following the war, said Mr. McDermott:

1. Established large prewar manu-

facturers will remain prominent in the postwar domestic picture, with the exception of one (Stewart-Warner), whose position has been assumed by Admiral. A few newcomers in the field have definitely announced their intentions and are spending money at this time to acquaint the public with their postwar products. Others are in the "considering" state.

2. The new domestic refrigerator will be a full hermetic unit, with a few semi-hermetic jobs.

3. No radical mechanical changes are contemplated, but rather, refinements in manufacture.

4. All will follow the trend of providing space for frozen food storage, either as a two-temperature compartment arrangement, or the simple expedient of increasing the size of the evaporator.

5. Eye appeal, as always, will be a potent sales factor, so we can be

sure of entirely new styles, with a greater use of plastics and aluminum, principally for trim.

6. Manufacturers have acquired expanded plant facilities, and this, coupled with improved manufacturing techniques and quality control, promised, not only greatly increased productive capacity, but a much better product.

7. Reconversion to civilian production after V-Day is expected to require much less time than the previously announced six months.

Reconversion in 60 Days?

In all probability, production will be under way within 60 to 90 days after the "go-ahead" signal is given—increasing each month as experienced personnel and plant facilities are converted to peacetime activities.

"What changes may be considered in our distribution system, as compared with prewar days, is not now apparent, and if any radical changes are anticipated they cannot be accurately forecast at the present," said the speaker. "Mortality among specialized appliance dealers has

been high, although a number have continued in business by selling other household products such as paint, glassware, wall paper, luggage, seeds, roofing paper, etc.

"Many of those remaining have, of course, expanded or added repair departments for all household appliances, including refrigerators.

"Chain distribution, mass or direct selling, will be a large factor in the postwar sales program. Large national tire and oil companies have completed their plans for an intensive refrigerator selling program. Super buying organizations providing national distribution will undoubtedly get a good share of the domestic business, too.

Service Firms Considered

"Much of the manufacturers' thinking, at the present time, is directed towards building up their distribution fences. Competition to secure distributors and dealers will be keen, and it is rather gratifying to learn through surveys conducted by the Society that the service contractor is receiving more than passing attention as a potential sales outlet. The independent service contractor has advanced himself substantially during the past 10 years. Today, the manufacturer is recognizing him as a business man, serving a community wherein he is receiving acknowledgment as a refrigeration specialist.

"During all these war years, the service engineer is the one individual that has maintained a constant contact with the user of mechanical refrigeration. Consequently, this group is in an advantageous position to know where new equipment is needed.

Parts Jobber In New Role?

"If I may venture a prediction, the interest of the service engineer is the sale of unitary equipment, including household refrigerators, and the desire to purchase competitively, may place the parts jobber in the position of a distributor. This is not entirely new, but there is a trend towards expansion in that direction and, in my opinion, may become a sales factor in certain localities, if such jobbers' sales are confined to legitimate dealer outlets.

"A good sign, deserving of mention in passing, is the concern of the large manufacturer for the security of the future for his dealer.

"Not so long ago, George Mason, president of Nash-Kelvinator, announcing a new franchise for the company's automobile dealers, stated, 'In the sellers market that will exist after the war, producers should not forget the security of the retailer, but should aim at strengthening him to face the 'leveling off' period that will inevitably follow when the postwar backlog is met.

"Proper distribution of the country's production, depends to a great extent, upon the soundness of the retail function and our contract recognizes this by aiming at soundness in the peak production years, rather than merely at breaking sales records.

"Basic aim of the franchise is to prevent over-expansion of the retail organization during the period of excessive public demand, and to provide fewer dealers with financial returns that will enable them to meet public needs during the recession period with full strength.

"This basic policy may well be adopted for the refrigeration dealer."

7½ Million in Replacement

With respect to the market, said Mr. McDermott, the industry starts from scratch. The stockpile is liquidated. In the last manufacturing year, 1941—was fabricated the industry's peak production—3,700,000 domestic units.

From various sources of information, it was assumed that in excess of 25,000,000 domestic mechanical refrigerators were in operation at that time. How many have reached the junk pile since that year is problematical. The average life of these boxes, for the purpose of considering replacement sales, was in the neighborhood of 10 years, indicating an approximate replacement market of 2,500,000 annually. On this basis alone, a backlog of three years' replacement sales has been built up.

Mr. McDermott summed up some pertinent facts on the future market as follows:

(Concluded on Page 19, Column 1)

NOW! COOLERS FOR WAR PLANTS



Now they can be sold! Day and Night glass filler coolers for industrial cafeterias; bubbler coolers for war plants.

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IN 17 WIDELY CIRCULATED MAGAZINES!

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NEW Coolerator

BUY MORE WAR BONDS

A wise man is Saint Peter. He knows that women every where are waiting for the New Coolerator with the MAGIC FLAVOR-SAVER! Wait for Coolerator—almost 1,000,000 users say it's tops in refrigeration.

Dealers: Do you know all the details about the Coolerator protected profit program? If not, write The Coolerator Company, Duluth 1, Minnesota, for your copy of the big, illustrated 40-page Coolerator Book! It's free!

THESE FIRMS ARE DISTRIBUTORS FOR AMERICA'S LARGEST SOLE SPECIALIST IN HOME REFRIGERATION:

Albuquerque, N. Mex., Alford's
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Charlotte, N. C., Southern Radio Corporation
Chattanooga, Tenn., Radio & Appliance Distributors, Inc.
Chicago, Ill., Commonwealth Utilities Company
Cincinnati, O., Ohio Appliances, Inc.
Cleveland, O., Cleveland Radioelectric, Inc.
Columbus, O., Ohio Appliances, Inc.
Dallas, Texas, The Schoellkopf Appliance Co., Ltd.
Davenport, Ia., G. W. Onthank Co.
Dayton, O., Ohio Appliances, Inc.
Denver, Colo., David C. Dodge Company
Detroit, Mich., Republic Supply Corporation
Des Moines, Iowa, G. W. Onthank Company
El Paso, Texas, Albert Mathias Company

Elmira, N. Y., Southern Tier Elec. Supply Co.
Fargo, N. D., Fargo Glass and Paint Co.
Grand Rapids, Mich., State Distributing Co.
Houston, Texas, Straus-Frank Company
Huntington, W. Va., Van Zandt Supply Co.
Indianapolis, Ind., Appliance Distributors, Inc.
Jacksonville, Fla., Consolidated Automotive Co.
Kansas City, Mo., Enterprise Wholesale Furn. & Stove Co.
Knoxville, Tenn., C. M. McClung & Co.
Little Rock, Ark., Holcomb Gunn Co.
Los Angeles, Calif., Suez-Young Co.
Louisville, Ky., Ewald Distributing Company
Memphis, Tenn., Mississippi Valley Furniture Co.
Milwaukee, Wisc., Taylor Electric Company
Nashville, Tenn., Keith Simmons Company, Inc.
New Haven, Conn., American Distributors, Inc.
New Orleans, La., Modern Appliances & Supply Co., Inc.
New York, N. Y., D. W. May Corporation
Export—J. H. Latham
Oklahoma City, Okla., Jenkins Wholesale Division
Omaha, Neb., G. W. Onthank Co.
Philadelphia, Pa., Elliott Lewis Electrical Co.

Phoenix, Ariz., Albert Mathias Co.
Pittsburgh, Pa., J. A. Williams Company
Portland, Ore., Bargelt Supply
Providence, R. I., Providence Electric Company
Richmond, Va., Wyatt-Cornick, Inc.
Rochester, N. Y., Bickford Brothers Co.
St. Louis, Mo., Stanley Distributing Company
St. Paul, Minn., Dealers Furniture Co.
Salt Lake City, Utah, Refrigeration Serv. & Eng. Co.
San Antonio, Texas, General Hotel Supply Company
San Francisco, Cal., McCormack & Company
Schenectady, N. Y., LeValley, McLeod, Kinkaid, Inc.
Seattle, Wash., Seattle Radio Supply, Inc.
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Washington, D. C., May Hardware Company
Willmar, Minn., Minnesota Electric Supply Co.

Service Firms In Sales Plans

(Concluded from Page 18, Column 5)

1. The backlog of orders built up will assure capacity production for several years.

2. Money will be available for the purchase of commodities. Government figures tell us that family incomes have risen from \$470 per person per year to \$709.

3. A large backlog of new home construction has been accumulated. Optimistically, the home building industry looks forward to a 10-year period to supply the demand starting with the construction of 350,000 homes during the first 12 months of the postwar period.

4. In the wide open market for present non-users of mechanical refrigeration, The National Electrical Manufacturers Association recently predicted that during the first three years of peace, more than \$1 billion will be spent for extending central station service to farms and in the purchase of electrical equipment for farm use. In all surveys, refrigerators rank high on the list of appliance purchases by the farmer.

5. An interesting sales trend deserving of mention is the promotion of the complete kitchen ensemble, especially by the larger home appliance manufacturers. This includes, in addition to the refrigerator, kitchen cabinets, ranges, dish washer, garbage disposal, sink, etc.

6. The home freezer may be regarded as an auxiliary domestic refrigerator, with potentialities among a large group of users whose present equipment is not due for replacement. They are conscious of the new era that frozen food promises, and are a group of logical prospects for this equipment.

A suggestion has been made that the service engineer may develop a service market of his own in converting some of the present domestic refrigerators to provide more storage space for frozen foods by the installation of a large evaporator, and partly blocking out air circulation.

Standards Revised On Handbook Sheets For Field Salesmen

NEW YORK CITY—Slight revisions in recommended standards for salesmen's handbook sheets published by individual manufacturers have been announced by the National Electrical Wholesalers Association, according to Charles G. Pyle, managing director.

Recommended overall size of sheet is now 8½ by 11 in., so printed as to permit cutting to a size of 8½ by 10 in., particularly for sheets published on apparatus and supply items.

Minimum binding margin of 1½ in. with the margin unpunched is also suggested.

Color code for the sheets is suggested as follows: for cost to distributor, goldenrod; for cost to wholesaler, russet; for cost to dealer or contractor, blue; for cost to consumer, pink.

Members of the N.E.W.A. voted more than 20 to 1 in favor of the

recommendations made by the catalog committee, says Mr. Pyle.

The catalog committee included A. C. Prange (chairman), General Electric Supply Corp., Bridgeport, Conn.; J. T. Morgan, Charleston Electrical Supply Co., Charleston, W. Va.; H. D. Roden, Roden Electrical Supply Co., Knoxville, Tenn.; and G. H. Wahn, George H. Wahn Co., Boston.

Kelvard Co. Expands Its Existing Quarters

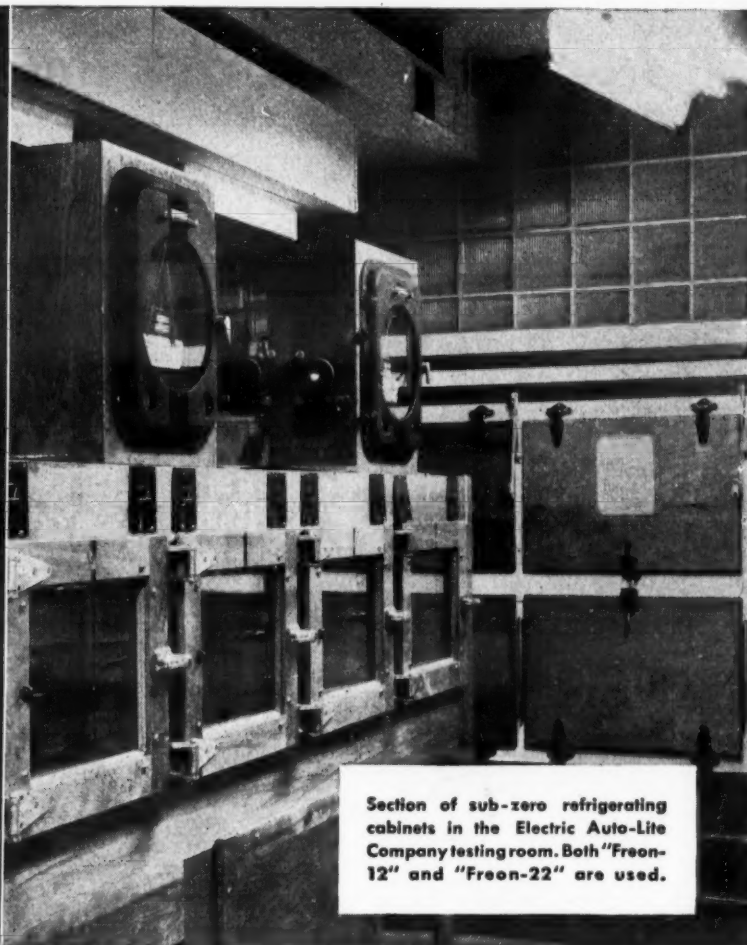
LONG ISLAND CITY, N. Y.—Kelvard Service, Inc., Long Island City, factory authorized service station for Kelvinator and Leonard in New York City, has increased its quarters 3,000 square feet.

Confronted with cramped space, due to increased personnel, shop work, and parts receiving and shipping, Kelvard leased the second floor Feb. 1, to which all offices, including the service order department, were moved. The ground floor is now devoted entirely to shop and parts. The new quarters provide cross ventilation and daylight, requiring only on dark days the use of fluorescent lighting.



Charles Coward (third from left), director of advertising for Kelvinator, reviews script at debut of the company's experimental television program series "Society of Amateur Chefs—Fun in the Kitchen," in the WABD (Dumont) studio in New York. Kelvinator is using this show to experiment in the possibilities of television as an advertising medium. Left to right in the picture are Rube Goldberg, the cartoonist; John Reed King, network announcer; Coward; Otto Soglow, creator of the "Little King" cartoons; Henry Hempstead (looking over camera), vice president of Geyer, Cornell & Newell agency; Ben Irvin Butler, president of the Chef's Society; and a Dumont cameraman.

Another important job for "FREON-22"



Section of sub-zero refrigerating cabinets in the Electric Auto-Lite Company testing room. Both "Freon-12" and "Freon-22" are used.

... maintenance of extreme low temperature in testing aircraft precision instruments

AT THE Electric Auto-Lite Company's Bay Manufacturing Division plant in Bay City, Michigan, "Freon-22" facilitates maintenance of temperatures to -65° F. Stratospheric temperatures such as these permit the accurate testing of precision instruments used in today's powerful, high-flying airplanes.

A moisture-resisting, glass-block room encloses the specially designed cabinets in which instruments are tested. Air in this room surrounding the cabinets is held at +70° F. with dew-point of -65° F.

Outside of the glass-block room two Carrier 7-K condensing units with desiccating units are employed to maintain the above temperatures and the dew-point of the air.

Typical refrigerating test cabinets and control instruments are shown in the picture above. Beyond, at the right, is one end of the block-enclosed room. Receiving cabinets in the wall

serve as an interlock between production departments and the testing room, and these facilitate maintaining dry air required in the room.

Instruments are tested at temperatures ranging from -35° F. down to -65° F. "Freon" refrigerants are used exclusively. "Freon-12" provides the higher temperatures, while "Freon-22" is used to maintain the extremely low temperatures.

Whenever sub-zero temperatures are required for commercial or manufacturing purposes, food processing or locker plant operation, air condi-

tioning and refrigerating engineers can depend fully upon "Freon" refrigerants for satisfactory and safe refrigeration at moderate cost. These refrigerants will have many new post-war applications. So include "Freon" in your plans for the future. Write today for complete information. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Delaware.

"Freon" refrigerants are widely used in heavy duty air conditioning and refrigeration systems.

WAR BONDS HELP BRING VICTORY NEARER
... BUY THEM REGULARLY.



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safe refrigerants

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"Freon" is Kinetic's registered trade mark for its fluorine refrigerants.

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MUST BE
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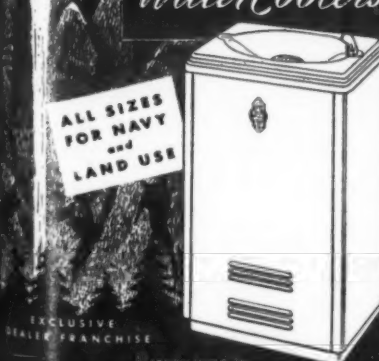
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service by guarding and preserving for
future use, priceless food which might other-
wise be wasted. Write for literature.

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They'll Do It Every Time By Jimmy Hatlo



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VOLUME 44, No. 15, SERIAL No. 838, APRIL 9, 1945

The Distributor's Place In Our Sun

CHAS. G. PYLE, managing director of the National Electrical Wholesalers Association, declares that the electrical industry never will have so-called "lost frontiers." So long as personal initiative and enterprise exist, Mr. Pyle avers, then so long will new electrical appliances and apparatus be developed.

The introduction of any new product is commonly termed pioneering a product. Demonstrating what the new product will do, why it is necessary or helpful, how it will benefit its purchaser, are the first steps in merchandising it. This education of the dealer and ultimate user is one of the major contributions made to merchandising by the wholesaler.

Under free enterprise only the most efficient and economical method of getting products from the maker to the consumer can survive. The appliance distributor specializes in creating a consumer market, and is experienced and efficient in warehousing, delivery, service, sales, extending credit, and collecting accounts. He has proven that he contributes greatly in increasing living standards and lowering costs.

In his position and location in a central trading area, he performs for the manufacturer, the dealer, and the consumer a necessary economic service. He counsels with the manufacturer regarding potential markets. Through his efforts and knowledge, a manufacturer can better gauge his material and production requirements. Thus all manufacturing facilities may be coordinated and full production provided for, with resultant low costs and consumer sales prices.

The manufacturer, through his distributor, is constantly alert to all competitive conditions and changes. The wholesaler backs up the manufacturer at the consumer level, insofar as interpreting policies are concerned. He insures the manufacturer of proper maintenance and service on his product. He maintains a warehouse and stocks an adequate supply of appliances, apparatus, and supplies for the convenience of his dealer organization and the industrial users in his territory.

In fact, the distributor acts as the purchasing agent for his varied customers. His responsibilities continue long after the ultimate sale to the final consumer of his goods. Because he handles many related, but not necessarily competitive, lines of merchandise he maintains a "balance of operation to avoid the peak-and-valley situations inherent in the sale of seasonal merchandise.

The electrical wholesaler often acquires the position of being a confidential consultant with his customer. He frequently renders a service beyond the usual call of duty or expectancy. He will assist the customer in the financing of his business, make engineering advice available to him, help him train both sales and service organizations, guide his advertising and sales promotional efforts, and perform other unusual services for which his earnings or profit do not provide.

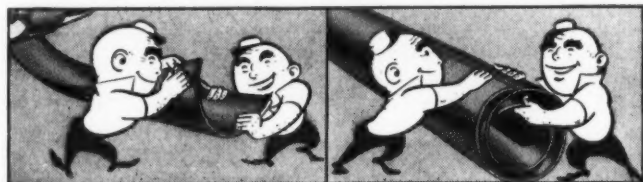
With the coming of reconversion, the appliance distributor, because he has the "know-how" and because he specializes in creating markets, will face both "Old" and "New Frontiers." The "Old Frontier" of accepted and established markets will have to be re-exploited. "New Frontiers," created by recently developed products, will require pioneering in unexplored markets.

Back the Attack Buy War Bonds

INVESTIGATE BUNDYWELD STEEL TUBING

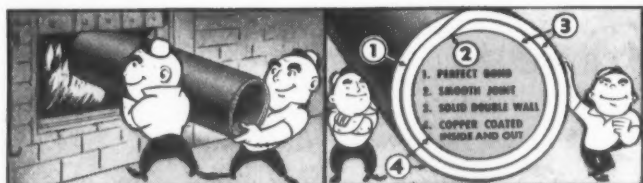
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HOW BUNDYWELD IS MADE



1 Bundyweld Tubing is made by a process entirely different from that used in making other tubing. A single strip of copper-coated S.A.E. 1010 steel is continuously rolled twice laterally...

2 ...into tubular form. Walls of uniform thickness and concentricity are assured by the use of close tolerance cold rolled strip. This double-rolled strip passes through a furnace where the...



3 ...copper coating fuses and alloys with the double steel walls. After brazing and cooling, it becomes a solid double wall steel tube, copper brazed throughout 360° of wall contact...

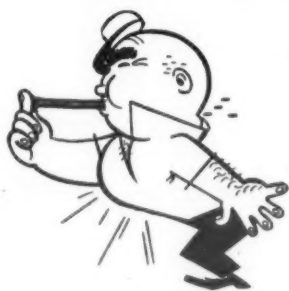
4 ...copper coated inside and out, free from scale, and closely held to dimensions. Hard or annealed in standard sizes up to 5/8" O.D. Special sizes cold drawn. Also furnished in Monel.



1 HIGH FATIGUE STRENGTH



2 CLOSE TOLERANCES



3 HIGH BURSTING STRENGTH



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Of particular value to production and design engineers interested in hydraulic, lubricating and fuel lines. 16 pages of technical data and fabricating information on Bundyweld steel and Bundyweld Monel tubing with complete description of the double flare.

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Suggestion For Improved Means of Applying Chilling Effect In 'Refrigeration Anesthesia'

By Charles H. Herter,* New York City

This article is in response to the friendly suggestion contained in the editorial of AIR CONDITIONING & REFRIGERATION NEWS for March 12, 1945, page 16, that a certain volume of refrigeration business is said to be awaiting attention in hospital operating rooms where many cases of amputation of limbs are demanding prompt and valuable assistance.

Reference is there made to a report on refrigeration anaesthesia as applied experimentally by Doctors R. T. Fox and W. S. Clark at the Miami Valley Hospital at Dayton, Ohio, and described more fully in the issue for Feb. 12, page 23. The "ice-bag" method is declared to yield fairly good results, but these doctors are seeking improved refrigerating equipment which would provide proper temperature effects and a lower nursing cost.

As an old refrigeration engineer the writer feels impelled to contribute to this worthy cause such suggestions as might help solve the problem of effecting anaesthetic treatments by mechanical refrigeration.

The word "anaesthesia" apparently means to render the affected portion of the human body more or less devoid of pain or feeling so that amputations or other operations can be performed on the patient without

*Licensed Professional Engineer, Life Member, American Society of Refrigerating Engineers.

causing much pain and at any rate keeping him alive.

Those interested in this subject can doubtless find medical reports containing valuable information as to the effects obtained by means of lowered temperatures. If refrigerating engineers are being advised by the doctors as to the working temperatures desired, and at what speed freezing should be effected, these engineers can easily satisfy any reasonable specification. About eight years ago a demand sprang up for an "Iron lung"—a closed shell into which the patient could be placed for artificial respiration. Within three years the combined efforts of doctors and engineers produced a very effective and practical device which is on the market.

Everyone knows that patients afflicted with fever in the head feel relieved if a soft rubber bag containing cracked ice is placed on their forehead. If the ice temperature of 32° F. is too cold, the skin being at 102°, a damp cloth can be inserted between skin and the cold bag at the start, to reduce this temperature difference of 70°. The main shortcoming of this old and slow method is the frequency of renewing the charge of cracked ice which necessitates attention on the part of the nurse.

ICELESS METHOD

In the case of a hospital where several cases might require cold anaesthetic treatment at about the same time, an improved iceless method could be introduced, as follows:

Install a new or connect to an existing water cooler as used in many offices for cooling a few gallons of drinking water per hour, such water being carefully filtered and cooled from the supply temperature such as 70° F. down to 40°, such cooler to operate with thermostatic control to cool the water to a definite outlet temperature.

A small electrically operated circulating pump is required to draw the warm water from the cooling bags back to pump, then force it through the cooler for recooling, to conserve

refrigeration and water. Proper thermometers should be provided in suitable recesses in the hose connections so that the temperature of water to and from bags can be read easily. Magnifying glasses are available for close reading.

If 40° F. is not low enough for the case in hand, then the cooler should be adapted for cooling brine, or glycerine and water solution, or methyl alcohol, or any other suitable non-freezing solution. Salt water (chloride of sodium) containing 22% Na Cl, specific gravity at 60° 1.167, has a freezing point of -2.5° F. and a specific heat of 0.794 B.t.u. per lb. brine at 14° F. Calcium chloride brine with 30% Ca Cl₂, specific gravity 1.287, has a freezing point of -46° and a specific heat of 0.631 per lb. brine at -40° F.

EQUIPMENT TO PROCURE

Any of a large number of manufacturers of commercial refrigerating equipment can quote on any such installation desired. New types of plastic tubes also are available for this service. It will only be necessary to let makers of ice bags, rubber ice trays, etc. construct flexible bags designed expressly for the flow of non-freezing solutions through them with valved inlets. A series of special well-fitting bags or jackets will have to be constructed, adapted to remove heat by contact with any parts of the body that might require refrigeration.

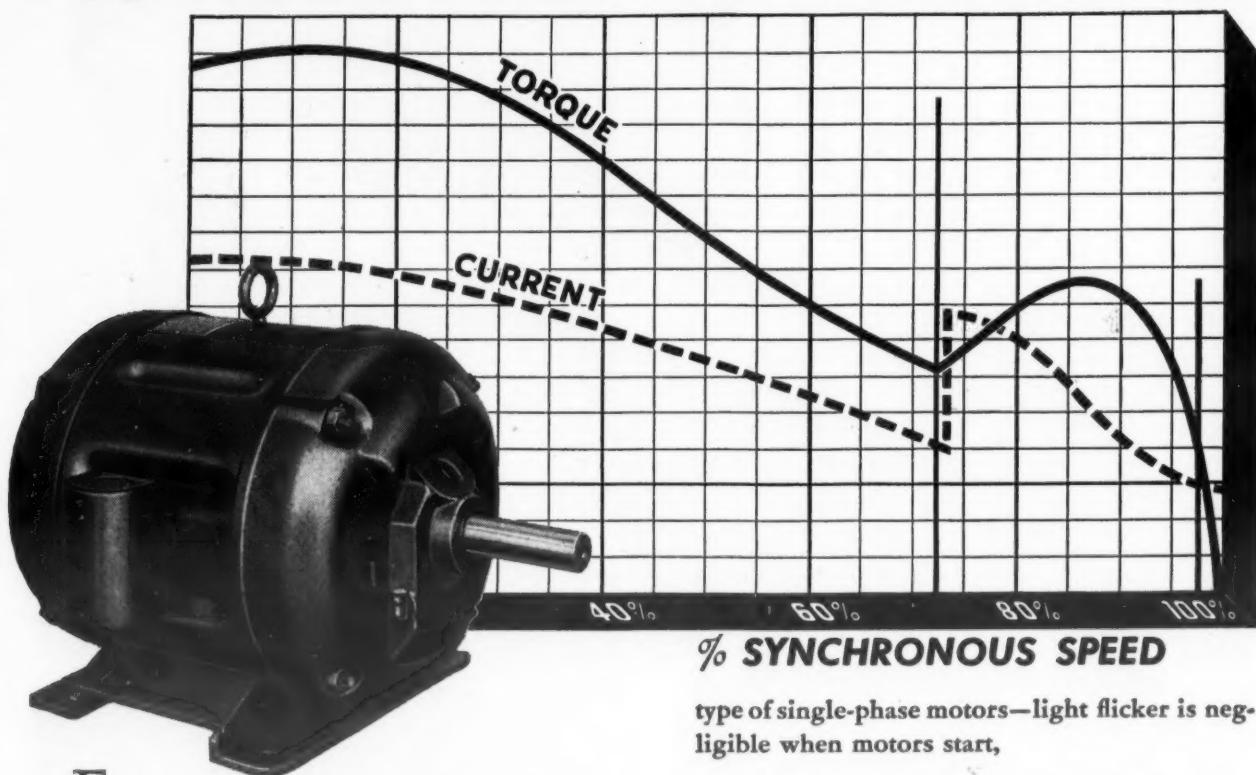
To reduce the cost the working pressure should be kept down to probably 10 lbs. and the bag test pressure, to say 20 lbs. per sq. in. To increase the cooling efficiency the bags should contain a number of parallel zigzag channels, to distribute the cooling fluid evenly. The walls of these channels will serve as strengthening ribs to tie the exterior bag surface to the inside flexible (contact) surface.

In general the coldest liquid should enter at a low point, and leave the bag a few degrees warmer, at a higher point remote from the inlet.

If we had to refrigerate a man's knee 5 inches in diameter we would

(Concluded on Page 23, Column 1)

For Those Hard-to-start Jobs—Use Wagner Repulsion-Start Induction Motors



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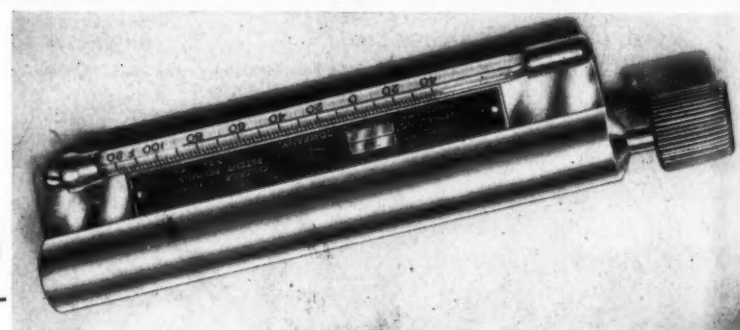
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Cooling Jacket With Circulating Chilling Agent Suggested For Anesthesia Work

(Concluded from Page 22, Column 5)

use of these soft flat hollow bags may 15 in. long and 24 in. wide, so it will reach 1½ times the circumference and would fit knees of other diameters too. Straps are 2 in. wide to clamp the inflated cold bag to the leg. The solution channels would run parallel to the leg bones.

When such a cooling jacket is in use, it should be insulated by covering its closed outer surface with heat insulating blankets containing one inch thickness of sponge rubber or equivalent light water resistant material. The bags with necessary rubber inlet and outlet connections, tubing, and fittings, also the insulating covers should be secured by hospitals from their supply companies or from the rubber manufacturers listed herein.

Then, only the cooler with motor driven "condensing unit," controls, filter, thermometers, and pressure gauge connection need be supplied by the refrigeration concern.

CHILLING FLESH

In recent years much information has been acquired on the subject of freezing meat for food at various rates of operation. It was found that possibly up to 60% of flesh was frozen in the temperature interval from 31° to 24° F. Additional freezing will solidify only a small percentage of liquid for each degree of further lowering.

The writer doubts that any medical gain will justify freezing live flesh to any skin temperature colder than 10°. In practice the presence of fat should be allowed for, because the heat conductivity of fat is about one-third only of that of lean flesh. It is of course advisable to acquire actual experience before this modified method is adopted generally.

Engineers can abstract heat from anything on earth, but the removal of pain and physical defects had better be left to the doctors. If necessary, an ice bag may be packed with brine ice of 0° F.

REFRIGERATING LOAD SMALL

A rough calculation will give an idea of the approximate amount of refrigeration required to freeze the above knee to an average temperature of 20° F.

Efficiency of process, 75%, hence total refrigeration = $1,132.2 \div 0.75 = 1,510$ B.t.u. per 5 hours, for these 10 lbs. Amount of cracked ice required, if used, about 12.

If sodium chloride brine is used of 19% strength, 1.142 specific gravity, 71.3 lbs. per cubic foot, specific heat 0.819, freezing point +4° F., then 1 cu. ft. heating up from 10° to 15°, will absorb 71.3 lbs. $\times 0.819 \times 5^\circ = 292$ B.t.u. in 5 hours. Hence circulate brine at rate of $1,510 \div 292 = 5.2$ cu. ft. per 5 hours, equal to 1.04 cu. ft. or 7.8 gallons per hour. This being a small quantity we can afford to double this rate to 15.6 gallons per hour to reduce the temperature range to 2.5°. Even then we can use only one of the so-called "chemical proportioning pumps" as made by:

Hills-McCanna Co., 2349 Nelson St., Chicago.

Bird-Archer Co., 400 Madison Ave., New York 17, N. Y.

Proportioners, Inc., 24 Coddling St., Providence, R. I.

This plunger pump should operate quietly, hence slowly. By arranging a full-size valved return connection from discharge back to suction, its effective delivery can be reduced to any desired amount.

With a volume of only 2.08 cu. ft. per hour at 6,000 ft. per hour velocity of flow, the size of hose required to and from bag is only ¼ in. inside diameter. We would fit the bags with ¾ in. connections and make the line tubing ½ in. I.D. An automatic air relief valve may be required at the highest point of the system to expel air to permit free flow.

Apparently the size of channels in the contact bags should not be larger than ½ × ½ inch square inside, or equivalent. A channeled bag of this proposed type is at least four times as effective as the old ice bag with but one compartment, because the cold liquid is being pumped fast over the flesh, while in the ice bag the stagnant water soon warms up and thus loses its cooling power.

In the case of several beds along one wall the supply and return tubes or "headers" can be ¾ or 1 inch I.D. with tee fittings permitting branching off down to each bed. One water or brine cooler of proper size will suffice in all cases.

So-called plastic tubing, transpar-

ent or opaque, acid resistant and with suitable fittings, are offered by many companies including:

Commercial Plastics Co., Chicago.
Santee Mfg. Co., Chicago.
Firestone Tire & Rubber Co., Akron, Ohio.

B. F. Goodrich Co., Akron, Ohio.
R. D. Werner Co., Inc., 295 Fifth Ave., New York City.

Yardley Plastics Co., Columbus, O.
The cold tubing, like other brine pipes, should be well covered to avoid dripping due to sweating, and to keep the solution cold. Both tubes may be wrapped together.

Chase Brass Announces Changes In Staff

WATERBURY, Conn.—Charles E. Hart, president of the Chase Brass & Copper Co., recently announced personnel changes involving Marvin A. Joy, Walter E. Evans, and John S. Coe.


Mr. Joy, formerly sales manager of the midwestern division at Cleveland, has been appointed assistant general sales manager of the Mill division here.

Mr. Evans, who since 1940 has been sales promotion manager here, goes to Cleveland where he will assume Mr. Joy's former duties.

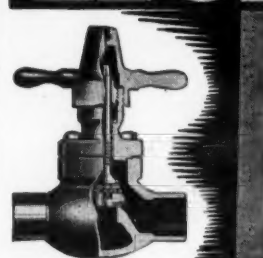
Mr. Coe is now assistant to the vice president in charge of Cleveland operations.

UNUSUAL OPENING for SALES PROMOTION MANAGER

Dependable, progressive Detroit manufacturer wishes to employ man with experience in home appliance merchandising, who can take charge of sales promotion department and participate in planning and advertising. The position is permanent, new, offers good chance for self-development. This advertisement is known to our own employees. In writing please include details of experience, age, education, salary expected. All replies confidential. Box 1700, Air Conditioning & Refrigeration News.



Wing Cap Valve... TYPE 203

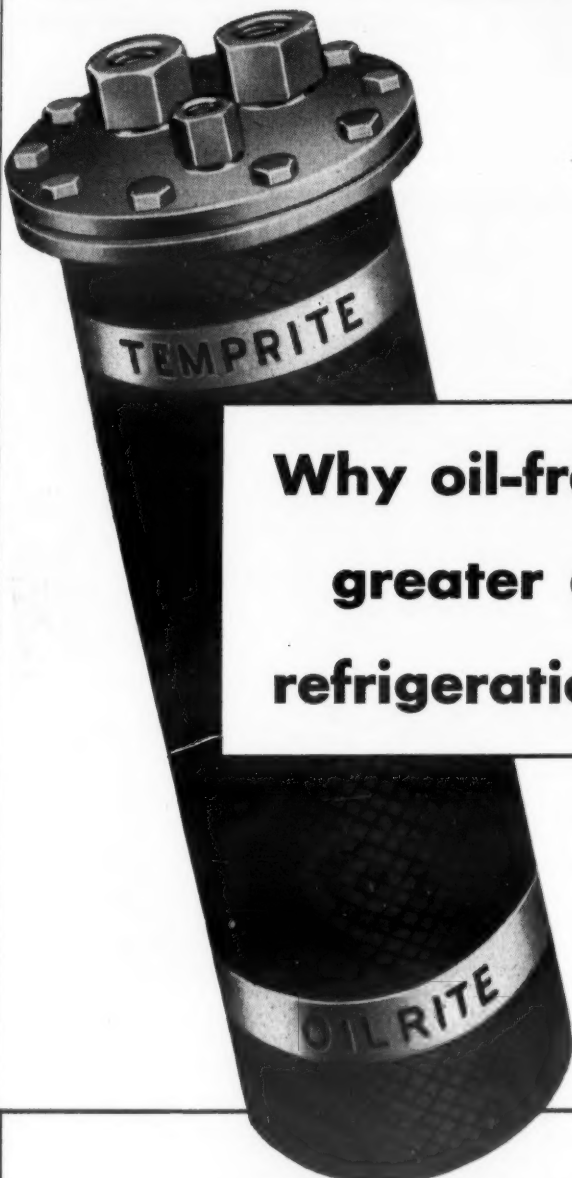


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refrigeration system**

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Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

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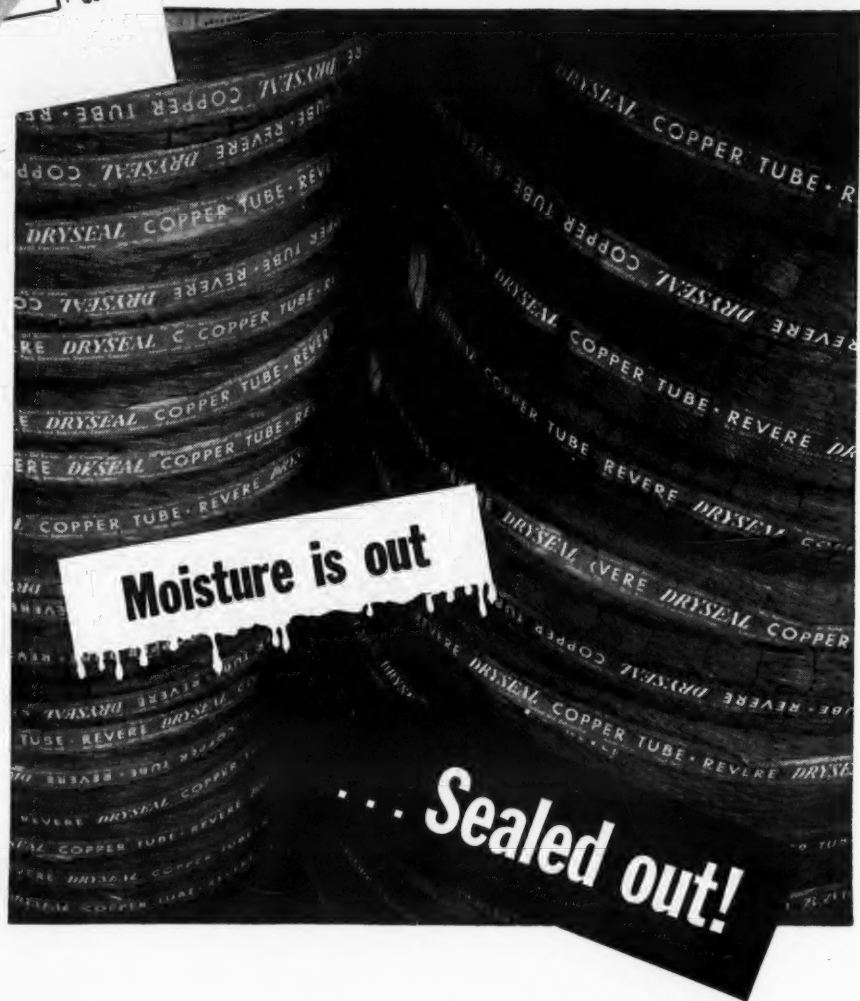
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It comes in coils of 25, 50 and 100 feet, and each length is individually treated to remove all interior moisture, then sealed at both ends. You get it clean, bright and bone-dry, so that no moisture is present to react with any refrigerant and produce corrosive products. This is but one of the "kid glove" treatments given Revere Dryseal Copper Tube so that it will be of utmost usefulness to you. It is made of deoxidized copper and is carefully kept free of oxides through every manufacturing step. In annealing this tube to dead softness, for example, the heating is done in a controlled atmosphere.

It comes in sizes from $\frac{1}{8}$ " to $\frac{3}{4}$ " o. d. with .035" wall. Also available for refrigeration, air conditioning and a variety of other services is Revere Sealed End Copper Tube. Each end is plugged and taped for protection against injury and contamination. For Revere Dryseal or Sealed End Copper Tube, call your distributor. The Revere Technical Advisory Service is always available to help with your problems.

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'Contact Man' Method Streamlines Handling of Household Service Calls

One Employee of Long Experience Answers All Calls, Decides Which Units Must Go To Shop

FRESNO, Calif.—Every working hour at Bonded Refrigeration Co. here is actually producing revenue since Manager Homer Creley introduced a "contact man" system for streamlining domestic refrigeration service.

The service firm, originally set up to service wine coolers, commercial highway refrigeration, restaurants, etc., is currently handling a vast amount of domestic refrigerator repairs.

"Where we handled about 50 domestic refrigerator repairs a year before Pearl Harbor, we're now taking in 800 a year," Mr. Creley explained. "Which wasn't the way I planned to build up my business, but which was more or less forced upon us. It meant that we had to revise all our former plans, and lay out our working time efficiently enough to make some progress against a heavy demand for repair work."

One of the first things Mr. Creley discovered in converting over to domestic work was that there was plenty of opportunity for lost motion and money. His seven-man reconditioning crew, accustomed to working on large compressors in wineries and commercial buildings, were unable to estimate repair costs accurately, and often sent in boxes for shop repair which turned out to be absolutely unrepairable.

"Some of the men spent as much as two hours trying to fix a balky refrigerator before discovering that we didn't have the parts and that it could not be repaired," Mr. Creley added. "Naturally we could not make a charge for such work, and time which might have been spent profitably was wasted."

After some experiment with training, the most practical answer to the problem is a "contact man" whose entire job is making outside calls on customers who call in for service. This man, a veteran at domestic refrigeration work, carries the tools with him for simple repairs, and makes all such on the spot where he alone can handle it. If the breakdown is of such a nature that it cannot be repaired in the home, it is up to him to examine it, and state whether the shop can handle the job.

In this way, no boxes which are likely to tie up shop facilities unprofitably are accepted for repair work, and the firm is saved the two-way expense of calling for and returning it. Many such instances developed in the year following Pearl Harbor, Mr. Creley emphasized, when homeowners using antiquated boxes attempted to place these in first class shape. At that time the shop picked up 13 refrigerators which after a lot of work proved unrepairable.

The "contact man" as such pays his own way on minor repairs and adjustments, Mr. Creley stated, as well as eliminating in advance costly mistakes which might otherwise detain men from profitable work to useless waste time. Moreover he has been able to pick up used refrigerators for resale in the appliance shop, uncover others which can be purchased for parts, etc.

During slack periods when there is no call for a service man to visit Fresno home, the contact man works in the shop on either commercial or domestic refrigeration. Thus even though the shop is overloaded with work, it pays the firm to keep one man on this unusual contact work.

Studies on Ohio Farm Aimed To Show Electrified Farm Saves Time, Money

MANSFIELD, Ohio—An Ohio farmer has started electrification of his 160-acre dairy farm in a fact-finding project to determine what can be saved in time, money and labor, and what increases in production he can get through the use of electricity.

The project is being sponsored by the Westinghouse Electric & Mfg. Co. which hopes to obtain a detailed cost and production picture of the use of electricity on a small farm. Although aided by Westinghouse, Joseph Motz, operator of the farm in Trumbull County, is paying all power and equipment costs out of his income.

To set up a basis of comparison between farm work on a non-electric and an electric serviced farm, time and motion studies have been and are being made of all farm work done before the application of electricity and after. They are being done by Norman G. Waggy, of the Ohio Public Service Co., and are believed to be the first studies of this type ever made of a farmer's work.

The project is being supervised by the Doane Agricultural Service, of St. Louis, farm management concern. It will ascertain from Mr. Waggy's studies and Mr. Motz's farm records to what extent electricity is of value to the small farmer.

The time and motion studies already made show that the family annually carried 10.76 tons of drinking water into the house and covered a distance of 49.21 miles to accomplish this task.

Water for the dairy cattle, the studies indicated, involved carrying 604.8 tons of water and took 350 man-hours during the five-month period the cattle are watered in the barn. When an electric deep well pump is installed, Mr. Motz will save the equivalent of 35 working days.

The use of a $\frac{1}{4}$ -hp. electric motor is saving Mr. Motz time and money, according to the Doane report, submitted to W. D. Hemker, manager of the Westinghouse Rural Electrification Division. The report shows that sharpening of a mower-sickle on the farm saves him 18 hours during the cutting season plus \$7.96, his cost for taking the mower-sickle to a blacksmith.

"Mr. Motz did not expect his power to pay its own way until he installed major productive electric equipment, such as the deep well pump, but it has made an operating profit during

the first two months in use," Mr. Hemker said.

The Westinghouse manager cited a total profit of \$17.57 by doing farm tasks with electricity, which, after the electrical bill of \$10.92 was paid, left a net profit of \$6.65.

"This profit was based on a maximum rate consumption of power and does not reflect the profit that could be obtained when the farm gets the benefits of lower rates through increased use of current. The Doane agency figured the profit through the use of electricity partly by crediting wages to the Motz farm for the time saved through the use of power."

"The farmer realizes that his labor and that of his family is worth money," Mr. Hemker said, "just as much as if he were paid by the hour instead of by the bushel or gallon. When a farmer finds a way of saving 18 hours during a busy season, such as harvesting, he knows every one of those hours means a better harvest and more money. With wartime labor shortage on the farm, those hours saved through the use of electricity are giving him some time that is almost impossible to get."

A study is also being made of the daily job of milking and the amount of milk obtained. This study will be compared to the results obtained after milking equipment is installed by Mr. Motz. Doane agents believe that the winter output of the herd will be increased after water is electrically pumped to the barn.

WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.

GENERAL REFRIGERATION DIVISION

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Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Humidity and Air Circulation (I)

In an article in the March 27, 1944 issue we noted that the length of time perishable foods are stored is an important factor in determining the temperature at which those foods must be stored.

No methods have been devised that successfully preserve certain foods such as the leafy vegetables beyond a short period of time—more than a few hours or a few days. Other foods may be kept "fresh" for days or weeks depending on the temperature and other conditions. Fast-freezing preserves some foods for months or even years. In general, the longer the food is to be kept, the colder must be the temperature.

There are two other factors that vitally affect the success of food preservation—the relative humidity of the air in which the food is kept and the rate of air circulation over the food.

The relative importance of each of the four factors—time, temperature, humidity, and air circulation—is dependent upon the type of food. In the case of meat the temperature at which it is kept is most important, while the humidity is perhaps the most important to lettuce. But for most foods, all four factors must be considered as almost equally important.

MOISTURE IN AIR

All the air with which we come into contact holds some water suspended in it in invisible vapor form and we call this moisture or water the "humidity" in the air. Warm air will hold more water suspended in it than an equal amount of cold air, so we usually refer to the "relative humidity" of the air, which is the percentage of water in the air as compared to the amount that it is possible for that same air to hold at its same temperature.

The "relative humidity" of the air is a measure of its ability to take on more moisture. A high relative humidity (90% for example) indicates that the air at its dry-bulb temperature is close to holding just about all the moisture that it is capable of holding. A low relative humidity (10% for example) indicates that the air at its dry-bulb temperature is holding only a small part of the moisture that it is capable of holding.

Air of high relative humidity doesn't need moisture very badly; it about has its quota. Air of low relative humidity will eagerly grab moisture from any wet or moist object placed in that air for it is "comparatively dry."

RELATIVE HUMIDITY CHANGES WITH TEMPERATURE

We must always bear in mind that the relative humidity of air is not fixed; it changes with the temperature. The amount of moisture in the air (its "absolute humidity") may not change but if the air is warmed the relative humidity drops, for the air has become capable of holding more moisture; if it is cooled its relative humidity goes up, for it then has become less capable of holding moisture, so that relatively, or comparatively, it has become more moist.

If a moist food is placed in a refrigerator having a low relative humidity, the dry air will start to absorb moisture from the surface of the moist food, and the drier the air (the lower its relative humidity), the faster the food will lose moisture to the air.

It is desirable to avoid this. In the first place, it affects the appearance of the food. Meats become darkened and less appetizing. They have not been spoiled and are still perfectly good food, but they have lost their eye appeal. They just "don't look so good"; people mistrust them and do not like to accept them. They become less salable.

LOSS IN WEIGHT

But they lose more than eye appeal. They lose weight and that

costs money. The lower the relative humidity (the drier the air) the more moisture the foods lose. Also, of course, the longer they are kept in a dry atmosphere the more weight they lose. This loss of weight can be and often is quite a factor in the cost of food and exercises quite an effect on the merchant's profit.

Shrinkage of quartered beef or other large pieces held in short-time storage (a few days) is not much of an item as it should run less than 1%. But if it is in long-time storage (several weeks) and the air is too dry (too low relative humidity), or the air circulation too rapid, the shrinkage in weight due to dehydration may run to as much as 5%.

To make the meat more salable butchers find it necessary to trim off the darkened, dried portions and these go into scrap. Together the shrinkage and trimmings may in extreme cases run as much as 10% so that the butchers net profit may be entirely eaten up due to dehydration.

The size of the piece is a factor in the dehydration of food. Comparatively, the small flat piece (such as a steak) presents more surface per pound to the air than a whole quarter of beef and proportionately loses more weight. For this reason, it is

preferable to cut meat only shortly before it is sold or used, at least the same day.

DEHYDRATION OF FROZEN FOODS

The drying-out of unprotected frozen foods stored over long periods would be excessive—not only affecting their weight and appearance, but also affecting their palatability or flavor. So it is very important that frozen foods be hermetically sealed in a moisture-vapor proof tissue.

For most foods, simply wrapping in wax paper is not enough for storage for months or even weeks. One of the best, and perhaps the best way, is to put the food in a cellophane bag and heat-seal the opening. (Be sure to press out all possible air before sealing, as it oxidizes and darkens the food.)

Some foods such as fish are commonly coated with ice by dipping the cold frozen food in water for a few seconds. This makes a good covering for about a month, but as ice "sublimes," that is, evaporates directly from its solid form of ice to a moisture vapor, the food must be redipped or "glazed," as this process is known, about every month.

Some foods are much more susceptible to loss of moisture than others and are affected differently. A little dehydration wilts leaf lettuce and renders it useless; not only has its appearance altered, but also its edibility. Fresh eggs (in their shells) lose moisture quite appreciably but the loss is mostly in weight; neither their appearance and salability nor their flavor have been much affected.

(To Be Continued)

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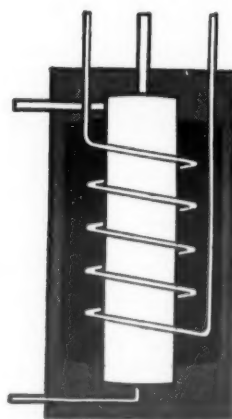


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The Distributor's Place In Our Sun

CHAS. G. PYLE, managing director of the National Electrical Wholesalers Association, declares that the electrical industry never will have so-called "lost frontiers." So long as personal initiative and enterprise exist, Mr. Pyle avers, then so long will new electrical appliances and apparatus be developed.

The introduction of any new product is commonly termed pioneering a product. Demonstrating what the new product will do, why it is necessary or helpful, how it will benefit its purchaser, are the first steps in merchandising it. This education of the dealer and ultimate user is one of the major contributions made to merchandising by the wholesaler.

Under free enterprise only the most efficient and economical method of getting products from the maker to the consumer can survive. The appliance distributor specializes in creating a consumer market, and is experienced and efficient in warehousing, delivery, service, sales, extending credit, and collecting accounts. He has proven that he contributes greatly in increasing living standards and lowering costs.

In his position and location in a central trading area, he performs for the manufacturer, the dealer, and the consumer a necessary economic service. He counsels with the manufacturer regarding potential markets. Through his efforts and knowledge, a manufacturer can better gauge his material and production requirements. Thus all manufacturing facilities may be coordinated and full production provided for, with resultant low costs and consumer sales prices.

The manufacturer, through his distributor, is constantly alert to all competitive conditions and changes. The wholesaler backs up the manufacturer at the consumer level, insofar as interpreting policies are concerned. He insures the manufacturer of proper maintenance and service on his product. He maintains a warehouse and stocks an adequate supply of appliances, apparatus, and supplies for the convenience of his dealer organization and the industrial users in his territory.

In fact, the distributor acts as the purchasing agent for his varied customers. His responsibilities continue long after the ultimate sale to the final consumer of his goods. Because he handles many related, but not necessarily competitive, lines of merchandise he maintains a "balance of operation to avoid the peak-and-valley situations inherent in the sale of seasonal merchandise.

The electrical wholesaler often acquires the position of being a confidential consultant with his customer. He frequently renders a service beyond the usual call of duty or expectancy. He will assist the customer in the financing of his business, make engineering advice available to him, help him train both sales and service organizations, guide his advertising and sales promotional efforts, and perform other unusual services for which his earnings or profit do not provide.

With the coming of reconversion, the appliance distributor, because he has the "know-how" and because he specializes in creating markets, will face both "Old" and "New Frontiers." The "Old Frontier" of accepted and established markets will have to be re-exploited. "New Frontiers," created by recently developed products, will require pioneering in unexplored markets.

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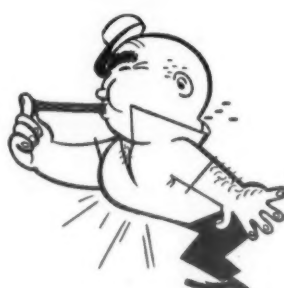
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3/8"	0.40	Brass	Polished	3/8-18	3/8-18
1/2"	0.70	Brass	Polished	1/2-14	1/2-14
3/4"	1.20	Brass	Polished	3/4-10	3/4-10
1"	2.00	Brass	Polished	1-8	1-8
1 1/4"	3.50	Brass	Polished	1 1/4-6	1 1/4-6
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2"	7.00	Brass	Polished	2-4	2-4
2 1/2"	10.00	Brass	Polished	2 1/2-3	2 1/2-3
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4"	20.00	Brass	Polished	4-2	4-2
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5"	28.00	Brass	Polished	5-2	5-2
5 1/2"	32.00	Brass	Polished	5 1/2-2	5 1/2-2
6"	36.00	Brass	Polished	6-2	6-2
6 1/2"	40.00	Brass	Polished	6 1/2-2	6 1/2-2
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46"	356.00	Brass	Polished	46-2	46-2
46 1/2"	360.00	Brass	Polished	46 1/2-2	46 1/2-2
47"	364.00	Brass	Polished	47-2	47-2
47 1/2"	368.00	Brass	Polished	47 1/2-2	47 1/2-2
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49"	380.00	Brass	Polished	49-2	49-2
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58 1/2"	456.00	Brass	Polished	58 1/2-2	58 1/2-2
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59 1/2"	464.00	Brass	Polished	59 1/2-2	59 1/2-2
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60 1/2"	472.00	Brass	Polished	60 1/2-2	60 1/2-2
61"	476.00	Brass	Polished	61-2	61-2
61 1/2"	480.00	Brass	Polished	61 1/2-2	61 1/2-2
62"	484.00	Brass	Polished	62-2	62-2
62 1/2"	488.00	Brass	Polished	62 1/2-2	62 1/2-2
63"	492.00	Brass	Polished	63-2	63-2
63 1/2"	496.00	Brass	Polished	63 1/2-2	63 1/2-2
64"	500.00	Brass	Polished	64-2	64-2
64 1/2"	504.00	Brass	Polished	64 1/2-2	64 1/2-2
65"	508.00	Brass	Polished	65-2	65-2
65 1/2"	512.00	Brass	Polished	65 1/2-2	65 1/2-2
66"	516.00	Brass	Polished	66-2	66-2
66 1/2"	520.00	Brass	Polished	66 1/2-2	66 1/2-2
67"	524.00	Brass	Polished	67-2	67-2
67 1/2"	528.00	Brass	Polished	67 1/2-2	67 1/2-2
68"	532.00	Brass	Polished	68-2	68-2
68 1/2"	536.00	Brass	Polished	68 1/2-2	68 1/2-2
69"	540.00	Brass	Polished	69-2	69-2
69 1/2"	544.00	Brass	Polished	69 1/2-2	69 1/2-2
70"	548.00	Brass	Polished	70-2	70-2
70 1/2"	552.00	Brass	Polished	70 1/2-2	70 1/2-2
71"	556.00	Brass	Polished	71-2	71-2
71 1/2"	560.00	Brass	Polished	71 1/2-2	71 1/2-2
72"	564.00	Brass	Polished	72-2	72-2
72 1/2"	568.00	Brass	Polished	72 1/2-2	72 1/2-2
73"	572.00	Brass	Polished	73-2	73-2
73 1/2"	576.00	Brass	Polished	73 1/2-2	73 1/2-2
74"	580.00	Brass	Polished	74-2	74-2
74 1/2"	584.00	Brass	Polished	74 1/2-2	74 1/2-2
75"	588.00	Brass	Polished	75-2	75-2
75 1/2"	592.00	Brass	Polished	75 1/2-2	75 1/2-2
76"	596.00	Brass	Polished	76-2	76-2
76 1/2"	600.00	Brass	Polished	76 1/2-2	76 1/2-2
77"	604.00	Brass	Polished	77-2	77-2
77 1/2"	608.00	Brass	Polished	77 1/2-2	77 1/2-2
78"	612.00	Brass	Polished	78-2	78-2
78 1/2"	616.00	Brass	Polished	78 1/2-2	78 1/2-2
79"	620.00	Brass	Polished	79-2	79-2
79 1/2"	624.00	Brass	Polished	79 1/2-2	79 1/2-2
80"	628.00	Brass	Polished	80-2	80-2
80 1/2"	632.00	Brass	Polished	80 1/2-2	80 1/2-2
81"	636.00	Brass	Polished	81-2	81-2
81 1/2"	640.00	Brass	Polished	81 1/2-2	81 1/2-2
82"	644.00	Brass	Polished	82-2	82-2
82 1/2"	648.00	Brass	Polished	82 1/2-2	82 1/2-2
83"	652.00	Brass	Polished	83-2	83-2
83 1/2"	656.00	Brass	Polished	83 1/2-2	83 1/2-2
84"	660.00	Brass	Polished	84-2	84-2
84 1/2"	664.00	Brass	Polished	84 1/2-2	84 1/2-2
85"	668.00	Brass	Polished	85-2	85-2
85 1/2"	672.00	Brass	Polished	85 1/2-2	85 1

Cooling Jacket With Circulating Chilling Agent Suggested For Anesthesia Work

(Concluded from Page 22, Column 5)

Use of these soft flat hollow bags, say 15 in. long and 24 in. wide, so that it will reach 1½ times the circumference and would fit knees of other diameters too. Straps are 2 in. wide to clamp the inflated cold bag to the leg. The solution channels would run parallel to the leg bones.

When such a cooling jacket is in use, it should be insulated by covering its closed outer surface with heat insulating blankets containing one inch thickness of sponge rubber or equivalent light water resistant material. The bags with necessary rubber inlet and outlet connections, tubing, and fittings, also the insulating covers should be secured by hospitals from their supply companies or from the rubber manufacturers listed herein.

Then, only the cooler with motor driven "condensing unit," controls, filter, thermometers, and pressure gauge connection need be supplied by the refrigeration concern.

CHILLING FLESH

In recent years much information was acquired on the subject of freezing meat for food at various rates of operation. It was found that possibly up to 60% of flesh was frozen in the temperature interval from 31° to 24° F. Additional freezing will solidify only a small percentage of liquid for each degree of further lowering.

The writer doubts that any medical gain will justify freezing live flesh to any skin temperature colder than 10°. In practice the presence of fat should be allowed for, because the heat conductivity of fat is about one-third only of that of lean flesh. It is of course advisable to acquire actual experience before this modified method is adopted generally.

Engineers can abstract heat from anything on earth, but the removal of pain and physical defects had better be left to the doctors. If necessary, an ice bag may be packed with brine ice of 0° F.

REFRIGERATING LOAD SMALL

A rough calculation will give an idea of the approximate amount of refrigeration required to freeze the above knee to an average temperature of 20° F.

Efficiency of process, 75%, hence total refrigeration = $1,132.2 \div 0.75 = 1,510$ B.t.u. per 5 hours, for these 10 lbs. Amount of cracked ice required, if used, about 12.

If sodium chloride brine is used of 19% strength, 1.142 specific gravity, 71.3 lbs. per cubic foot, specific heat 0.819, freezing point +4° F., then 1 cu. ft. heating up from 10° to 15°, will absorb $71.3 \text{ lbs.} \times 0.819 \times 5^\circ = 292$ B.t.u. in 5 hours. Hence circulate brine at rate of $1,510 \div 292 = 5.2$ cu. ft. per 5 hours, equal to 1.04 cu. ft. or 7.8 gallons per hour. This being a small quantity we can afford to double this rate to 15.6 gallons per hour to reduce the temperature range to 2.5°. Even then we can use only one of the so-called "chemical proportioning pumps" as made by:

Hills-McCanna Co., 2349 Nelson St., Chicago.

Bird-Archer Co., 400 Madison Ave., New York 17, N. Y.

Proportioners, Inc., 24 Coddling St., Providence, R. I.

This plunger pump should operate quietly, hence slowly. By arranging a full-size valved return connection from discharge back to suction, its effective delivery can be reduced to any desired amount.

With a volume of only 2.08 cu. ft. per hour at 6,000 ft. per hour velocity of flow, the size of hose required to and from bag is only ¼ in. inside diameter. We would fit the bags with ¾ in. connections and make the line tubing ½ in. I.D. An automatic air relief valve may be required at the highest point of the system to expel air to permit free flow.

Apparently the size of channels in the contact bags should not be larger than ½ × ½ inch square inside, or equivalent. A channeled bag of this proposed type is at least four times as effective as the old ice bag with but one compartment, because the cold liquid is being pumped fast over the flesh, while in the ice bag the stagnant water soon warms up and thus loses its cooling power.

In the case of several beds along one wall the supply and return tubes or "headers" can be ¾ or 1 inch I.D. with tee fittings permitting branching off down to each bed. One water or brine cooler of proper size will suffice in all cases.

So-called plastic tubing, transpar-

ent or opaque, acid resistant and with suitable fittings, are offered by many companies including:

Commercial Plastics Co., Chicago.
Santee Mfg. Co., Chicago.
Firestone Tire & Rubber Co., Akron, Ohio.

B. F. Goodrich Co., Akron, Ohio.
R. D. Werner Co., Inc., 295 Fifth Ave., New York City.

Yardley Plastics Co., Columbus, O.
The cold tubing, like other brine pipes, should be well covered to avoid dripping due to sweating, and to keep the solution cold. Both tubes may be wrapped together.

Chase Brass Announces Changes In Staff

WATERBURY, Conn.—Charles E. Hart, president of the Chase Brass & Copper Co., recently announced personnel changes involving Marvin A. Joy, Walter E. Evans, and John S. Coe.

Mr. Joy, formerly sales manager of the midwestern division at Cleveland, has been appointed assistant general sales manager of the Mill division here.

Mr. Evans, who since 1940 has been sales promotion manager here, goes to Cleveland where he will assume Mr. Joy's former duties.

Mr. Coe is now assistant to the vice president in charge of Cleveland operations.

UNUSUAL OPENING for SALES PROMOTION MANAGER

Dependable, progressive Detroit manufacturer wishes to employ man with experience in home appliance merchandising, who can take charge of sales promotion department and participate in planning and advertising. The position is permanent, new, offers good chance for self-development. This advertisement is known to our own employees. In writing please include details of experience, age, education, salary expected. All replies confidential. Box 1700, Air Conditioning & Refrigeration News.



Wing Cap Valve . . . TYPE 203

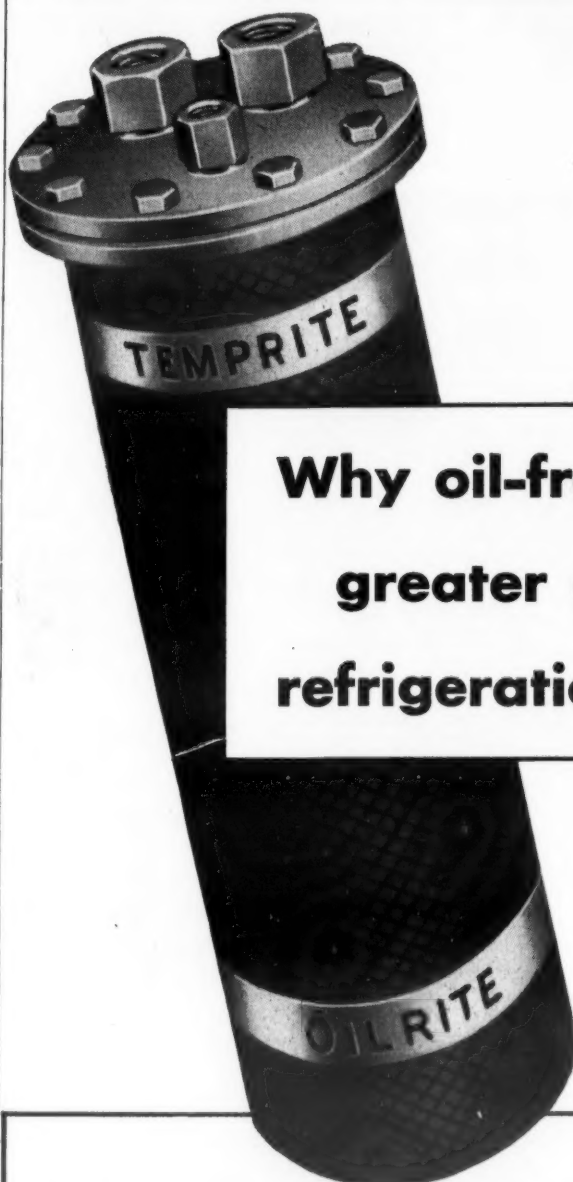


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When you apply a TEMPRITE "Oilrite" Automatic Oil Separator to any refrigeration system, you can expect these results:

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➡ Low temperature installations easily reach from four to seven degrees lower without increased operating time.

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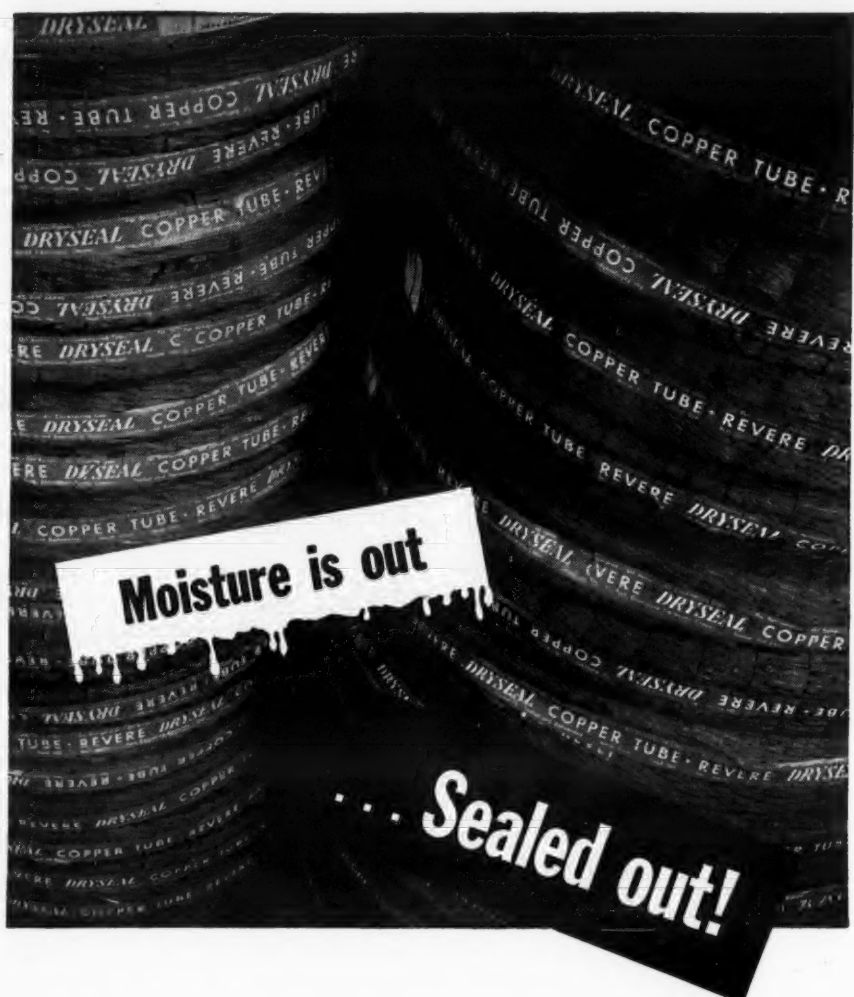
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It comes in sizes from $\frac{1}{8}$ " to $\frac{3}{4}$ " o. d. with .035" wall. Also available for refrigeration, air conditioning and a variety of other services is Revere Sealed End Copper Tube. Each end is plugged and taped for protection against injury and contamination. For Revere Dryseal or Sealed End Copper Tube, call your distributor. The Revere Technical Advisory Service is always available to help with your problems.

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Used separately to supply horsepower (just under 82 pounds in weight) or with adapter and generator (only 116 pounds in weight) to furnish electric energy, the Andover Auxiliary Power

Unit will provide greater energy output per pound of weight than has been available to industries heretofore.

'Contact Man' Method Streamlines Handling of Household Service Calls

One Employee of Long Experience Answers All
Calls, Decides Which Units Must Go To Shop

FRESNO, Calif.—Every working hour at Bonded Refrigeration Co. here is actually producing revenue since Manager Homer Creley introduced a "contact man" system for streamlining domestic refrigeration service.

The service firm, originally set up to service wine coolers, commercial highway refrigeration, restaurants, etc., is currently handling a vast amount of domestic refrigerator repairs.

"Where we handled about 50 domestic refrigerators a year before Pearl Harbor, we're now taking in 800 a year," Mr. Creley explained. "Which wasn't the way I planned to build up my business, but which was more or less forced upon us. It meant that we had to revise all our former plans, and lay out our working time efficiently enough to make some progress against a heavy demand for repair work."

One of the first things Mr. Creley discovered in converting over to domestic work was that there was plenty of opportunity for lost motion and money. His seven-man reconditioning crew, accustomed to working on large compressors in wineries and commercial buildings, were unable to estimate repair costs accurately, and often sent in boxes for shop repair which turned out to be absolutely unrepairable.

"Some of the men spent as much as two hours trying to fix a balky refrigerator before discovering that we didn't have the parts and that it could not be repaired," Mr. Creley added. "Naturally we could not make a charge for such work, and time which might have been spent profitably was wasted."

After some experiment with training, the most practical answer to the problem is a "contact man" whose entire job is making outside calls on customers who call in for service. This man, a veteran at domestic refrigeration work, carries the tools with him for simple repairs, and makes all such on the spot where he alone can handle it. If the breakdown is of such a nature that it cannot be repaired in the home, it is up to him to examine it, and state whether the shop can handle the job.

In this way, no boxes which are likely to tie up shop facilities unprofitably are accepted for repair work, and the firm is saved the two-way expense of calling for and returning it. Many such instances developed in the year following Pearl Harbor, Mr. Creley emphasized, when homeowners using antiquated boxes attempted to place these in first class shape. At that time the shop picked up 13 refrigerators which after a lot of work proved unrepairable.

The "contact man" as such pays his own way on minor repairs and adjustments, Mr. Creley stated, as well as eliminating in advance costly mistakes which might otherwise detour men from profitable work to useless waste time. Moreover he has been able to pick up used refrigerators for resale in the appliance shop, uncover others which can be purchased for parts, etc.

During slack periods when there is no call for a service man to visit a Fresno home, the contact man works in the shop on either commercial or domestic refrigeration. Thus even though the shop is overloaded with work, it pays the firm to keep one man on this unusual contact work.

Studies on Ohio Farm Aimed To Show Electrified Farm Saves Time, Money

MANSFIELD, Ohio—An Ohio farmer has started electrification of his 160-acre dairy farm in a fact-finding project to determine what can be saved in time, money and labor, and what increases in production he can get through the use of electricity.

The project is being sponsored by the Westinghouse Electric & Mfg. Co. which hopes to obtain a detailed cost and production picture of the use of electricity on a small farm. Although aided by Westinghouse, Joseph Motz, operator of the farm in Trumbull County, is paying all power and equipment costs out of his income.

To set up a basis of comparison between farm work on a non-electric and an electric serviced farm, time and motion studies have been and are being made of all farm work done before the application of electricity and after. They are being done by Norman G. Waggy, of the Ohio Public Service Co., and are believed to be the first studies of this type ever made of a farmer's work.

The project is being supervised by the Doane Agricultural Service, of St. Louis, farm management concern. It will ascertain from Mr. Waggy's studies and Mr. Motz's farm records to what extent electricity is of value to the small farmer.

The time and motion studies already made show that the family annually carried 10.76 tons of drinking water into the house and covered a distance of 49.21 miles to accomplish this task.

Water for the dairy cattle, the studies indicated, involved carrying 604.8 tons of water and took 350 man-hours during the five-month period the cattle are watered in the barn. When an electric deep well pump is installed, Mr. Motz will save the equivalent of 35 working days.

The use of a $\frac{1}{2}$ -hp. electric motor is saving Mr. Motz time and money, according to the Doane report, submitted to W. D. Hemker, manager of the Westinghouse Rural Electrification Division. The report shows that sharpening of a mower-sickle on the farm saves him 18 hours during the cutting season plus \$7.96, his cost for taking the mower-sickle to a blacksmith.

"Mr. Motz did not expect his power to pay its own way until he installed major productive electric equipment, such as the deep well pump, but it has made an operating profit during

the first two months in use," Mr. Hemker said.

The Westinghouse manager cited a total profit of \$17.57 by doing farm tasks with electricity, which, after the electrical bill of \$10.92 was paid, left a net profit of \$6.65.

"This profit was based on a maximum rate consumption of power and does not reflect the profit that could be obtained when the farm gets the benefits of lower rates through increased use of current. The Doane agency figured the profit through the use of electricity partly by crediting wages to the Motz farm for the time saved through the use of power."

"The farmer realizes that his labor and that of his family is worth money," Mr. Hemker said, "just as much as if he were paid by the hour instead of by the bushel or gallon. When a farmer finds a way of saving 18 hours during a busy season, such as harvesting, he knows every one of those hours means a better harvest and more money. With wartime labor shortage on the farm, those hours saved through the use of electricity are giving him some time that is almost impossible to get."

A study is also being made of the daily job of milking and the amount of milk obtained. This study will be compared to the results obtained after milking equipment is installed by Mr. Motz. Doane agents believe that the winter output of the herd will be increased after water is electrically pumped to the barn.



WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.

GENERAL REFRIGERATION DIVISION

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Beloit, Wis.





Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Humidity and Air Circulation (I)

In an article in the March 27, 1944 issue we noted that the length of time perishable foods are stored is an important factor in determining the temperature at which those foods must be stored.

No methods have been devised that successfully preserve certain foods such as the leafy vegetables beyond a short period of time—more than a few hours or a few days. Other foods may be kept "fresh" for days or weeks depending on the temperature and other conditions. Fast-freezing preserves some foods for months or even years. In general, the longer the food is to be kept, the colder must be the temperature.

There are two other factors that vitally affect the success of food preservation—the relative humidity of the air in which the food is kept and the rate of air circulation over the food.

The relative importance of each of the four factors—time, temperature, humidity, and air circulation—is dependent upon the type of food. In the case of meat the temperature at which it is kept is most important, while the humidity is perhaps the most important to lettuce. But for most foods, all four factors must be considered as almost equally important.

MOISTURE IN AIR

All the air with which we come into contact holds some water suspended in it in invisible vapor form and we call this moisture or water the "humidity" in the air. Warm air will hold more water suspended in it than an equal amount of cold air, so we usually refer to the "relative humidity" of the air, which is the percentage of water in the air as compared to the amount that it is possible for that same air to hold at its same temperature.

The "relative humidity" of the air is a measure of its ability to take on more moisture. A high relative humidity (90% for example) indicates that the air at its dry-bulb temperature is close to holding just about all the moisture that it is capable of holding. A low relative humidity (10% for example) indicates that the air at its dry-bulb temperature is holding only a small part of the moisture that it is capable of holding.

Air of high relative humidity doesn't need moisture very badly; it about has its quota. Air of low relative humidity will eagerly grab moisture from any wet or moist object placed in that air for it is "comparatively dry."

RELATIVE HUMIDITY CHANGES WITH TEMPERATURE

We must always bear in mind that the relative humidity of air is not fixed; it changes with the temperature. The amount of moisture in the air (its "absolute humidity") may not change but if the air is warmed the relative humidity drops, for the air has become capable of holding more moisture; if it is cooled its relative humidity goes up, for it then has become less capable of holding moisture, so that relatively, or comparatively, it has become more moist.

If a moist food is placed in a refrigerator having a low relative humidity, the dry air will start to absorb moisture from the surface of the moist food, and the drier the air (the lower its relative humidity), the faster the food will lose moisture to the air.

It is desirable to avoid this. In the first place, it affects the appearance of the food. Meats become darkened and less appetizing. They have not been spoiled and are still perfectly good food, but they have lost their eye appeal. They just "don't look so good"; people mistrust them and do not like to accept them. They become less salable.

LOSS IN WEIGHT

But they lose more than eye appeal. They lose weight and that

costs money. The lower the relative humidity (the drier the air) the more moisture the foods lose. Also, of course, the longer they are kept in a dry atmosphere the more weight they lose. This loss of weight can be and often is quite a factor in the cost of food and exercises quite an effect on the merchant's profit.

Shrinkage of quartered beef or other large pieces held in short-time storage (a few days) is not much of an item as it should run less than 1%. But if it is in long-time storage (several weeks) and the air is too dry (too low relative humidity), or the air circulation too rapid, the shrinkage in weight due to dehydration may run to as much as 5%.

To make the meat more salable butchers find it necessary to trim off the darkened, dried portions and these go into scrap. Together the shrinkage and trimmings may in extreme cases run as much as 10% so that the butchers net profit may be entirely eaten up due to dehydration.

The size of the piece is a factor in the dehydration of food. Comparatively, the small flat piece (such as a steak) presents more surface per pound to the air than a whole quarter of beef and proportionately loses more weight. For this reason, it is

preferable to cut meat only shortly before it is sold or used, at least the same day.

DEHYDRATION OF FROZEN FOODS

The drying-out of unprotected frozen foods stored over long periods would be excessive—not only affecting their weight and appearance, but also affecting their palatability or flavor. So it is very important that frozen foods be hermetically sealed in a moisture-vapor proof tissue.

For most foods, simply wrapping in wax paper is not enough for storage for months or even weeks. One of the best, and perhaps the best way, is to put the food in a cellophane bag and heat-seal the opening. (Be sure to press out all possible air before sealing, as it oxidizes and darkens the food.)

Some foods such as fish are commonly coated with ice by dipping the cold frozen food in water for a few seconds. This makes a good covering for about a month, but as ice "sublimes," that is, evaporates directly from its solid form of ice to a moisture vapor, the food must be redipped or "glazed," as this process is known, about every month.

Some foods are much more susceptible to loss of moisture than others and are affected differently. A little dehydration wilts leaf lettuce and renders it useless; not only has its appearance altered, but also its edibility. Fresh eggs (in their shells) lose moisture quite appreciably but the loss is mostly in weight; neither their appearance and salability nor their flavor have been much affected.

(To Be Continued)

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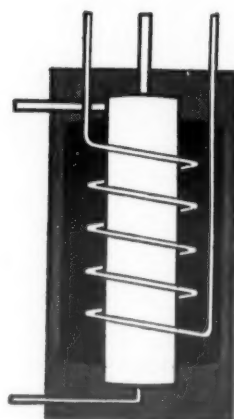


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FILTERS • NEUTRALIZERS

Stoner Predicts Most Home Freezers Will Be Standard Design; Few Service Problems

MONTREAL, Canada—Home freezers will present a few special problems for refrigeration service men, and special precautions will be necessary in putting together such equipment once it has been dismantled for overhaul or other reasons, C. W. Stoner of Ben-Hur Mfg. Co. declared in a talk before the recent Interprovincial Association of R.S.E.S. conference here.

Mr. Stoner also expressed his viewpoints on what will probably be the design features generally followed in construction of home

freezers.

"All developments to date point to a tremendous market for home and farm freezers, a market that has been variously estimated at from 200,000 to 2,000,000 units per year," said Mr. Stoner.

"The war has greatly accelerated frozen food production facilities and estimates indicate an immediate need for 50,000 frozen food dispensing cabinets or retailers' display cabinets. New developments in frozen food transportation and distribution are planned.

"The industry growth rate depends on the efficient and far-sighted operations of its inter-dependent divisions. High quality and performance standards are obligations of the manufacturer—intelligent selling and well-planned placement are responsibilities of dealers and distributors.

"Well informed service engineers will assure efficient and uninterrupted freezer operation. Food processors and distributors must produce and market quality foods. Finally, attractive pricing and customer education in respect to the efficient use of freezers are in varying degrees joint obligations of all the foregoing divisions."

Advertisers have succeeded in stimulating public interest by publishing artists' dreams of the farm and home freezer of tomorrow, the speaker pointed out. Manufacturers will strive for acceptable appearance, but are primarily concerned with practicability, he predicted. Shortages and restrictions have accelerated interest in freezing equipment to which consumers were vaguely introduced during the two years prior to the war, but the consumer by virtue of his sketchy acquaintance with the equipment—sketchy to the point of not even knowing his space requirements—is hardly ready to dictate intelligently design and appearance standards.

Top-Opening Advantages

"It is probable that basic design will approximate prewar models, the majority of which were rectangular, top-opening, chest types along the lines of ice cream holding cabinets," declared Mr. Stoner.

"The structural simplicity of the top-opening type permits favorable production costs. Cold air spillage is negligible when the cabinet is opened, resulting in improved operating efficiency and less frosting of interior surfaces. Top opening cabinets frost most heavily near the top, thereby reducing defrosting difficulties and frequency.

"Accessibility of chest type cabinets offers some disadvantages which have largely been overcome in smaller capacity cabinets by designing for shallow reach-in depth, and in larger capacity cabinets, by shelving and partitioning.

"The infrequent opening of freezer cabinets as compared to conventional refrigerators further lessens the importance of the accessibility factor. "Many users of chest type home freezers have found that planned arrangement and marking of packages has solved their problem of locating wanted items.

Location of Machine

"Outward appearance of postwar freezers will be different, depending on whether the condensing unit is mounted under a portion of the cabinet or externally. It appears the trend may be toward under cabinet mounting to provide more space per given length. Outward appearance of under mounted cabinets will be largely governed by condensing unit ventilation requirements and how these requirements can be combined with the artists' conception of exterior design.

"Interior cabinet appearance will generally depend on the design of the low side of the refrigerating system. The trend will probably be toward attractive, smooth interior surfaces with the evaporator coils on the liner.

One or Two Compartments

"Cabinets of 8 cu. ft. or less will generally have a single compartment for storing frozen foods and will permit simultaneous freezing of small quantities. Larger sizes will usually provide separate freezing compartments.

"Freezing compartments will be designed for freezing by air conduction or by combined air conduction and surface contact with horizontal refrigerated surfaces.

"Forced air circulation within the freezer compartments will be used in many of the larger capacity models.

"The findings of nutrition specialists and customer reaction to the superiority of fast frozen foods compared to the more slowly frozen foods will affect the design trend of future home freezers. The trend will probably be toward a freezing com-

partment separated from the storage compartments to prevent air interchange between compartments and the employment of horizontal surface contact for freezing."

Mr. Stoner believes that the most popular sizes will probably range from 5 to 18-cu. ft. capacity and will be balanced to condensing units ranging from 1/4 to 1/2 hp. Cabinets designed for space capacities greater than 18 cu. ft. present dimensional and weight difficulties.

Rectangular cabinets, Mr. Stoner thinks, will probably be favored for their appearance and the fact that they cause the least loss of usable floor space. Small cabinets will normally be placed in kitchens and so their style and finish will be better than larger models which will be located in basements or adjoining buildings.

Indicator Unnecessary?

Farm and home freezers may be equipped with externally mounted temperature indicators so users can readily see how their units are operating.

"The need for alarm devices is tempered by the facts that freezers will almost certainly be inspected once each day," the speaker said.

"Controls may be mounted to permit exterior temperature adjustments. Temperature controls may be favored over pressure types because replacements are possible without disturbing the refrigerating system. Controls will be provided with a limited temperature range so that it is impossible for users to operate the cabinet at unsafe temperatures by changing adjustments."

Mr. Stoner thinks it unlikely that servicing of home freezers will pose

greater problems than today's domestic refrigerator or ice cream holding cabinets. The most serious problems challenging the ingenuity of development engineers today are the problems which are most likely to test the resourcefulness of service engineers later.

Customer use or abuse may, to some extent, cause complaints. Fractional horsepower condensing units have limited heat removal capacity, and excessive freezing loads may cause dissatisfaction unless customers follow manufacturers' loading recommendations as set forth in instruction bulletins.

Moisture Seal Vital

"Home freezers are designed with the greatest care to completely seal all cabinet surfaces against moisture infiltration into the insulating material," he said.

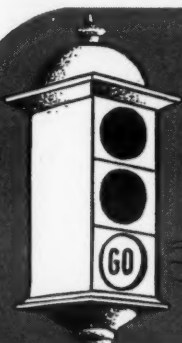
"If for any reason it becomes necessary for the service engineer to dismantle a cabinet, the greatest precautions must be taken to assure positive resealing. Poor insulation in a well sealed cabinet may easily be superior to high quality insulation in a poorly sealed cabinet.

"Gasket sealing of doors or lids of home freezer cabinets is important, and inspection should always be made when making service calls. Leaky gaskets may cause complaints of excessive running and high power consumption.

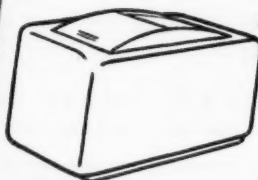
"Leaky door gaskets are usually apparent to the service engineer because of icing directly behind the leak on the liner or breaker strip. Positive gasket sealing reduces the necessity for frequent defrosting.

"Operating conditions will deter-

(Concluded on Page 27, Column 1)

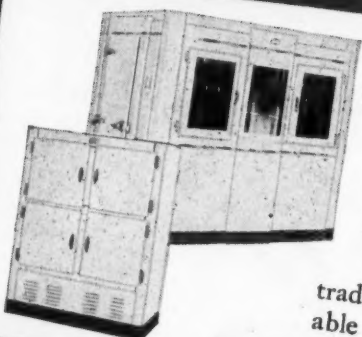


WHEN THE LIGHT CHANGES WILL YOU BE *ready?*



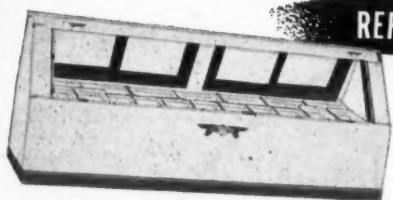
BE READY—WITH SHERER FREEZERS

Juicy steaks, garden-fresh vegetables, fish, wild game and ice cream will be frozen in Sherer Freezers by thousands of Americans on farms, in stores and rural homes the country over. These freezers, available when restrictions are removed. Many models, such as self-serve vegetable and dairy cases, reach-in refrigerators and walk-in cooling rooms, as well as the Sherer distribution franchise, are available now! Write or wire for full details.



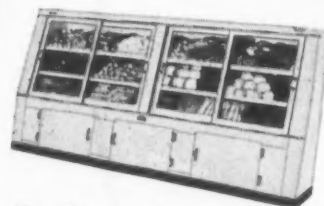
AVAILABLE NOW!

Sherer reach-in refrigerators and walk-in cooling rooms have always been highly regarded by the trade, and extremely profitable for Sherer distributors.



REFRIGERATOR DISPLAY CASES

As a pioneer manufacturer of fine commercial refrigeration, Sherer will offer meat, delicatessen and dairy display cases ranking with the finest, at prices that will bring you profits and volume.



SELF-SERVE VEGETAIRE

Built for generous display and storage, the famous Sherer Vegetaire has for many years been a byword with food merchants as a "builder-upper" of extra fruit and vegetable sales and profits. You will find that Vegetaire sells in volume at a substantial profit to you.

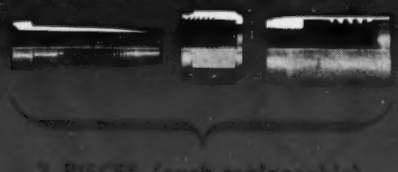


Besides this complete line, Sherer's refrigeration, accessory department offers you condensing units, fan and blower type coils, valves, controls and other supplies.

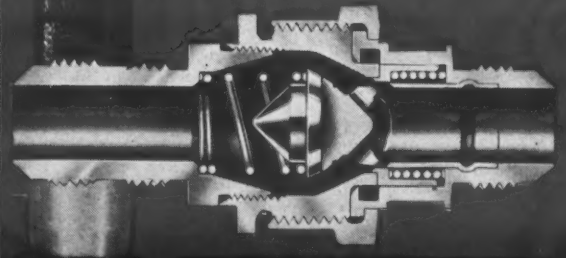
SHERER-GILLETT CO.
MARSHALL, MICHIGAN

TWO MAJOR WAR DEVELOPMENTS now ready for industry

1. Aeroquip Hose Lines* with detachable and reusable fittings simplify the supply problem and save valuable time, thus helping our armed forces on all fronts.



2. Pieces (each replaceable) Assembly without special tools. No tightening or adjustment after assembly. Fittings can be removed from hose and reused over 100 times.



2. Aeroquip Self Sealing Couplings*

allow disconnection of liquid carrying lines without loss of fluid and reconnection without inclusion of air.



AEROQUIP CORPORATION

Sealing the Cabinet and the System Main Home Freezer Service Problems

(Concluded from Page 26, Column 5)

mine defrosting frequency, and it is up to the service engineer or the user to decide when defrosting is necessary. Atmospheric conditions, the frequency and duration of cabinet openings, leaky door gaskets, and poorly wrapped food are the causes of excessive frosting. Obviously, defrosting during winter months presents the fewest difficulties.

"Although manufacturers provide high quality material and workmanship, the forces of corrosion and deterioration are forever at work and it is suggested that service engineers analyze installations to assure the most efficient and favorable operating conditions. Home freezer cabinets in unventilated basements where seepage from lawns is prevalent present complications that may be promptly abated by relocating the equipment or improving the ventilation.

"The practice of some users of piling papers or blankets on cabinets should be discouraged because this results in reduced surface temperatures and induces condensation on the finished surfaces, finally causing stains, peeling, and corrosion.

"Moisture in small quantities inside the refrigerating system in contact with the refrigerant may cause some difficulties unless extreme care has been taken by manufacturers to properly dehydrate the system.

"Whenever it becomes necessary to open a home freezer system, repairs should be made as quickly as possible. Extreme care should be taken by the service engineer never to leave evaporator tubes open longer than is absolutely necessary. If repairs cannot be made immediately the tubes should be sealed tightly until repairs are completed. The installation of a new dehydrator in the system is recommended whenever a home freezer system is opened.

"Where repairs are necessary on home freezers, it is strongly recommended that only standard repair parts be used and standard practices be followed. Such unimportant appearing details as quantity of refrigerant charge, amount and type of oil, capillary tube length, bore and source or expansion valve type, size

and setting or control type, setting and make will cause great differences in the operating characteristics of home freezer refrigerating systems."

Bulletin Answers 75 Questions on Freezing

DAYTON—A bulletin titled "75 Answers to Questions most commonly asked about home freezing," was recently compiled for home economists and food editors by the Home Economics Department of the Frigidaire Division of General Motors Corp.

Believing that the general public still has a hazy viewpoint on the proper methods of processing, wrapping, storing, and cooking the many foods that can be preserved by freezing, "75 Answers" was prepared to aid teachers and editors in disseminating accurate and helpful information.

Edited by Verna Miller, director of the Frigidaire Home Economics Department, the booklet discloses information gathered from research during the past several years, not only in the home economics department but also in the product research and development division of Frigidaire.

The bulletin contains a foreword by Miss Miller, a story on Frigidaire's Frozen Food Research program, simplified general rules to be followed in freezing food and the 75 questions and answers. These questions and answers cover fruits, vegetables, meats, fowl, fish, and dairy products, information on the care of home freezer refrigeration equipment, and the proper packaging materials to be used for every type of food.

Stanley Promotes Curtis Christ

NEW BRITAIN, Conn.—Curtis W. Christ, for many years active in the refrigeration hardware field, has been named assistant general sales manager of the hardware division of the Stanley Works here.

Mr. Christ joined the company in 1919 and since 1930 has been responsible for production and sale of special hardware to industrial plants and equippers.

With Amana



E. L. HINCHLIFF

Hinchliff Joins Amana Freezer Sales Force

AMANA, Iowa—E. L. Hinchliff has joined the sales staff of the Amana Society's refrigeration division, announces George C. Foerstner, general manager.

With his background of wide experience in public utility and appliance merchandising, Mr. Hinchliff will concentrate chiefly on marketing of the three Amana home freezer units.

Sweet Dreams
FOR
FARM FAMILIES
EVERYWHERE

BEN-HUR FARM AND HOME FREEZERS

FORWARD-LOOKING families plan to include a BEN-HUR Farm & Home Freezer in their post-war budgets. All the family looks forward to enjoying home-grown vegetables, fruits, meat and poultry months after they have been frozen and stored . . . banking substantial food savings . . . avoiding extra shopping trips.

YOU can make these post-war dreams come true for your customers — and cash in on a tremendous future market — with BEN-HUR Farm and Home Freezer.

GET ON OUR LIST to receive full information—as soon as this data becomes available.



BEN-HUR MANUFACTURING CO.
634 EAST KEEFE AVENUE • MILWAUKEE 12, WIS.

BEN-HUR FARM & HOME FREEZERS

Versatile



Redmond MICROMOTORS

FOR HEATING, VENTILATING AND AIR-CONDITIONING

HERE'S important news for postwar planners. Right now Redmond is ready with new shaded pole AC Micromotors, for a twenty-fifth horsepower or less on continuous duty.

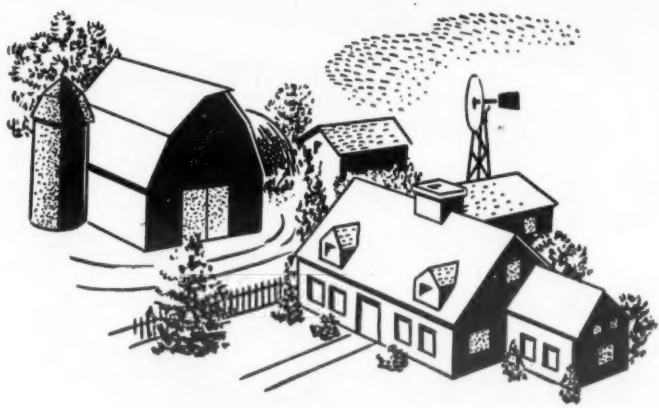
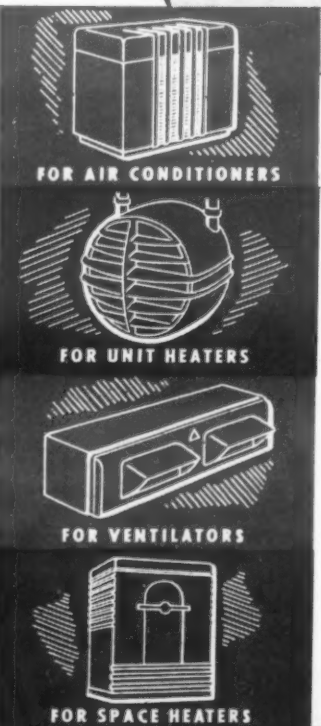
They're compact, quiet and unique in construction. They're inexpensive, long lasting and

good looking. And when it comes to versatility they're adaptable to countless applications.

You should get thoroughly acquainted with the new shaded pole Micromotors. Write us today and get the whole story.

A. G. Redmond Company

OWOSSO, MICHIGAN, U. S. A.



PORTRAIT OF A LIVE PROSPECT for refrigeration products

IT'S TRUE . . . the farmer is classified as an essential civilian producer and is permitted, for example, to purchase milk coolers now. He's a real live prospect today and the manufacturer who sells him milk coolers today will have a foot in the door to sell him frozen food chests and other refrigeration units tomorrow.

We at Tecumseh are confident that the farm represents a tremendous postwar refrigeration market and especially in the sub-zero field. The farm vitally needs adequate refrigeration and with it can

operate much more profitably.

If you're now in the planning stage on postwar models, why not first consult Chieftain engineers? We've already designed postwar sample models of compressors and condensing units and built on the same sound engineering principles that established Chieftain leadership before the war. A complete new line of commercial hermetics is presented, with greater flexibility of application and added safeguards for trouble-free performance. Write our sales department today.

WRITE OR WIRE FOR FURTHER INFORMATION

NOW . . . AND POSTWAR . . .
CHIEFTAIN IS THE LEADER



Chieftain

**TECUMSEH
PRODUCTS CO.**
TECUMSEH • MICHIGAN



Many model sizes are available — with or without white Dulux enamelled cabinets.

YOU CAN GET THEM NOW STRATA-FLO WATER COOLERS



Complete Line of Heat Exchange Equipment Also Available.

ELIMINATE FREEZE-UP RISKS!

You can never have a wet system with the revolutionary new Strata-Flo. Not only does exclusive d-h design make it impossible for water to enter the refrigerant circuit — it makes possible noncritical operation with the simplest of trouble-free controls. Installation and service calls are nil — maintenance costs negligible.

In addition, this new type of cooler eliminates warm-up effects, gives quick recovery, and actually doubles the cold water supply of ordinary coolers at peak periods.

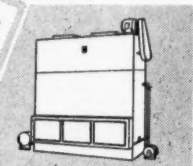
Beautiful in appearance, economical in operation, dependable and long-lasting, only Strata-Flo offers you all of these advantages. And it is available now! Write today for complete informational catalog.

drayer-hanson INC.

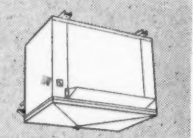
Since 1910 738 E. Pico St., Los Angeles 21, California

THE FIRST AND ONLY FACTORY OF ITS KIND IN THE WEST WITH COMPLETE FACILITIES FOR ENGINEERING, DESIGNING, MANUFACTURING HEAT EXCHANGE EQUIPMENT

Complete Line of Heat Exchange Equipment Also Available.



Water-Mixer Evaporative Coolers



Flo-Cold Cooling Units



Spasaver Horizontal Coolers

How Hot an Item Will the Room Cooler Be?

By L. W. Clifford, Supervisor, Sales Development,
Refrigeration Specialties Department, Westinghouse Electric & Mfg. Co.

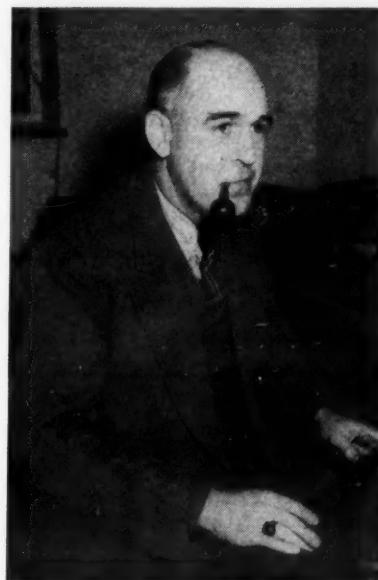
Because of a rather auspicious beginning in the two years, 1940 and 1941, when room coolers received a real push from manufacturers, distributors, and dealers, there is a great deal of optimism about where the volume of sales may go when production and sales are again unrestricted and the pent-up demand for them can be satisfied.

It might be interesting, however, before we peek into the crystal to see where we may be going, to take a few minutes to see where we have been.

It was not until 1939 that sales of individual room coolers in capacities of from 4,000 to 9,000 cooling units reached any appreciable volume. This volume increased considerably in 1940 and again in 1941 when, according to the best estimates I have seen, the sales volume reached about 40,000 units, or in terms of retail sales, about \$10,000,000.

Where Were Units Sold Prewar?

Where did these units go? In order to determine, by customer classification, where his 1941 units went into ultimate service, one of the larger manufacturers conducted a survey, through his distributor, to



L. W. CLIFFORD

He peers into the crystal ball on the future of the room cooler.

learn the facts. The replies obtained were from a sufficiently large cross section of the total that the results carry some considerable authority.

45% Residential Prewar

It was found that about 45% of the units went into the residential market in private homes and apartments. The Commercial and Industrial markets each accounted for about 20% and the balance, or 15%, went into professional offices.

This seems to give the lie to the rather commonly accepted idea that the price of room coolers takes them out of the residential market, by-and-large.

The 1941 retail prices of the models of different make and capacity were roughly, from \$130 to \$350 and, from the above indications, it would appear that many people were willing to pay for the comfort such a unit could offer them.

Just what does a room cooler offer

in the way of comfort, beyond the mere cooling of the room air?

For the industry to grow to its full stature, those companies who make them and the distributors and dealers who sell them must make a concerted drive to sell the full range of functions which the room cooler is capable of performing. In other words we must plan the whole tune — with all stops out.

Should Do 7 Things

The No. 1 function is, of course, cooling, or reduction of the temperature of the room air. From this does come a measure of comfort, for the same reason that we feel more comfortable on a cool day than on a hot one. The temperature at the surface of the body is reduced and the tendency to perspire is lessened.

But of equal, if not greater, importance is the No. 2 function, the reduction of the relative humidity of the room air, or the removal of actual moisture from the air by the evaporator coil in the unit. Here again, the drier air of the room, since it more readily absorbs moisture from the surface of the skin, actually creates a large measure of comfort.

In addition to those two important functions, the air motion created within the room by the circulating fans in the room cooler, as function No. 3, creates comfort by the increased rapidity of air movement over the body surfaces. This air motion increases moisture evaporation and produces comfort just as does a regular electric fan, even without cooling the air.

Function No. 4, by which, at the turn of a dial, outdoor air is brought into the room cooler, mixed with room air, cooled and dehumidified, and blown out into the room, certainly produces a great measure of physical comfort. Much of the mental and physical alertness one senses in a room where a room cooler is operating can come from the constantly replenished supply of oxygen and the resultant escaping of the room's stale air through cracks under doors, etc.

Some models have been built that

(Concluded on Page 29, Column 1)

AQUEDUCTS...
THE LAST WORD IN ENGINEERING... 2,000 YEARS AGO



Nowadays you wouldn't depend on a Roman aqueduct for water any more than you should depend on prime-surface pipe for cooling.

Efficient heat transfer requires extended coil surface—fins! It will pay you to replace bare cooling pipes with modern MARLO Fin Coils for:

Greater efficiency • Smaller size
Lighter weight • Lower cost

May we send you our Blast Coil Bulletin?

MARLO
HEAT TRANSFER SURFACE

Ball-Bonded Blast Coils — Cooling and Heating • Air Conditioning and Refrigeration Apparatus • Industrial Blower Units • Unit Coolers • Evaporative Condensers and Coolers • Low Temperature Apparatus

"Marlo Means Heat Transfer Equipment"

MARLO COIL COMPANY
ST. LOUIS 10, MISSOURI

Refrigeration AND AIR CONDITIONING

YOU will find NIBCO WROT Fittings, return bends and tubular parts mighty useful in laying out air conditioning or refrigeration equipment. In many cases, instead of having to buy a special part, you will find what you need in our standard line...tees, elbows, couplings, reducers, adapters, crosses, return bends, hangers...more than one thousand items and sizes are listed in Catalog 613. If you do not have a copy, write for it today.

NIBCO WROT Copper Fittings

NORTHERN INDIANA BRASS CO.
ELKHART, INDIANA
VALVES AND FITTINGS SINCE 1904



Homes Should Account for Half of Room Unit Market



Approximately 45% of the prewar sales of room coolers were to the residential market in private homes and apartments. Improved appearance of the units enhance the beauty and environment of any room where they may be installed.

Room Cooler Can Be Profitable Dealer Item If Handled Right

(Concluded from Page 28, Column 5) provide, also by a simple knob adjustment, Function No. 5, which is really No. 4, in reverse. In those models the stale room air is drawn into the room cooler, mixed with the condensing air and discharged to the outdoors. Function No. 6, likewise has a definite relation to physical comfort. This function is the removal of airborne dust and dirt by the mechanical filters through which the air passes as it circulates through the room cooler. Surely, this filtered air cannot be overlooked in selling. Even Function No. 7 spells comfort. Certainly the elimination of street noises—the clanging of trolleys, the screech of brakes, and the rumble of traffic—is a boon to the busy executive in his office. Much of this sound is eliminated because, when the room cooler is in use, the windows are kept tightly closed and the objectionable street noises kept outside. We find, then, that we do have

something to sell besides cooling, whether the room cooler is to be installed in a bedroom, a living room, a doctor's office, or the office of an industrial plant executive.

Don't Oversell!

However, don't oversell! Install the units only in rooms where the dimensions, temperatures, sun loads, etc., are within the limitations of the manufacturer's published data. He knows better than any one else how his room coolers will perform.

Don't sell them to cure hayfever or other respiratory disorders. Room cooler filters do eliminate some pollen from the air and this, together with lowered relative humidity, may give some measure of relief. But don't look for trouble by making promises which are not possible of fulfillment.

Now, what seems to lie ahead for the business?

A recent industry report indicates

that about 100,000 units will be needed in the first postwar year to satisfy (1) the demand for replacement of wornout equipment and (2) the demands for new equipment immediately existing and those which will develop as units become available and the dual stimuli of advertising and promotion take their effect. This total, if produced and sold, will represent a sales volume of about 2½ times the industry total in the greatest prewar year.

Have a Display Unit

It would seem, therefore, that the room cooler business can well justify a place in the dealer's postwar planning. Being a product which lends itself well to floor display and demonstration, the dealer who plans to sell room coolers should plan his floor space accordingly and allocate a section of his floor to an operating display. By operating the display unit the dealer can let the prospect actually feel the stream of cool, dry air as it pours from the unit and can also satisfy the prospect that, in appearance and quietness, he is buying a unit which will, in quiet dignity, enhance the beauty and environment of any room where it may be installed.

Richmond, Va., To Cool City Council Chamber

RICHMOND, Va. — The council chamber and committee rooms of City Council here will be air conditioned, L. R. Brown, chairman of the Finance Committee, reported in announcing an item in the city budget for this purpose.

THE SYMBOL OF
Modern
REFRIGERATION
CONTROL

MODERNIZE YOUR REFRIGERATION SYSTEM
POLARTRON Temperature
CONTROL
MINNEAPOLIS-HONEYWELL REGULATOR CO.

Over 75 YEARS REFRIGERATION EXPERIENCE

is on the record of the 5 Key men in the West's most modern Supply Jobber and Equipment Distributor.

WHAT DOES THIS MEAN TO YOU?

Simply This! If you are a dealer, contractor, or service operator in our area . . . design, engineering, sales, and financial assistance in ADDITION to a COMPLETE source of supply.

If you are a manufacturer of equipment, parts, or supplies . . . an alert experienced organization ready and able to promote finer products for the good of the industry.

UNITED

Refrigeration - Air Conditioning - Products - Parts and Supplies
944 South Grand Avenue, Los Angeles 15, California

YOU CAN... STOP

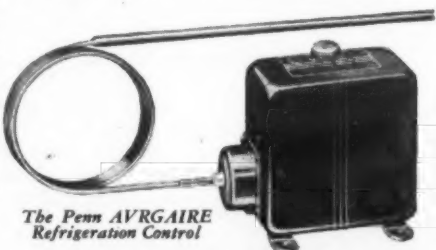
half-way measures... with AVRGAIRE control

In commercial "above-freezing" installations, it isn't enough to regulate coil temperature alone or box temperature alone! In either case, it's only half the job!

PENN does both with a single temperature element control . . . AVRGAIRE. This low-cost, highly-efficient control is operated by the average temperature of both coil and air. Thus, it maintains extremely close regulation of box temperature. It defrosts the coil on each operating cycle when box load is normal, but delays defrost when box is loaded with warm produce and extra cooling capacity is needed. And it maintains uniform

humidity to minimize dehydration and "sliming" losses.

Make sure your refrigeration controls do the "whole" job. Get full particulars on AVRGAIRE from Penn Electric Switch Co., Gosben, Ind. Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



The Penn AVRGAIRE Refrigeration Control

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

When you're up against a tough one...

TURN TO

CONDENSING UNITS

RIGHT now, you can get G-E Condensing Units—in sizes ranging from 1, 6 to 125 hp.—for all essential applications. And you can recommend G-E Condensing Units, with full confidence, for the toughest job. The G-E name wins ready acceptance from your customers . . . and the units perform with the high efficiency and complete reliability vital in refrigeration applications.

Economy, dependability, long service life—these are outstanding features for which G-E equipment has long been famous. But there's a still further advantage. Rating for rating, G-E units occupy less space than most other makes. In replacement jobs, that means you can frequently install a higher capacity unit in the same area, providing additional safeguards against costly breakdowns. In new installations, the compactness of G-E equipment conserves valuable storage or sales space.

Get the full facts now on this complete line of condensing units. Write General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 5703, Bloomfield, New Jersey.

BUY... and hold... WAR BONDS

GENERAL ELECTRIC

Tune in: "The G-E HOUSE PARTY," every afternoon Monday through Friday, 4 p. m., EWT, CBS . . . "The G-E ALL-GIRL ORCHESTRA," Sundays, 10 p. m., EWT, NBC . . . "THE WORLD TODAY" News, Monday through Friday, 6:45 p. m., EWT, CBS

Giant Refrigerator Control 'Shows All'



On the trouble diagnosis board prepared by Westinghouse to explain refrigeration repair problems at the "Conservice" schools this year will be this giant-size working model of a temperature control, large enough so all class members can readily see how it operates.

New Westinghouse 'Conservice' Schools Add Commercial Refrigerator, Washer Classes

MANSFIELD, Ohio—Westinghouse "Conservice" schools for 1945 will be expanded to include half-day sessions on commercial refrigeration and on the Westinghouse automatic washer, the Laundromat, it has been announced by L. K. Baxter, manager of the service department of the company's appliance division here.

Other features of this year's schools include a 30-minute, talking motion picture in full color, entitled, "It All Adds Up," which shows how good service builds goodwill and illustrates the steps in the training of a young service man just starting out on home calls; and a sound slide film, also 30 minutes long, on "The Refrigerator Temperature Control," with Ben Grauer as commentator.

The 1945 Conservice schools will be sponsored throughout the country by distributors for their dealers and dealers' service men, as in the past, according to Mr. Baxter, with Westinghouse service supervisors conducting the sessions.

The program consists of two separate and distinct one-day schools:

the first school covers domestic refrigerators and refrigeration specialties, including condensing units, reach-in refrigerators, beverage coolers, milk coolers, water coolers, and plug-in air conditioners. The second school deals with electric ranges, electric water heaters, and laundry equipment, with the latter section divided into two parts; the Laundromat and conventional washers and ironers.

The current Conservice refrigeration school features a giant model of a refrigerator temperature control. All operational parts, large enough so that they can be seen clearly by the class, are mounted on a demonstration board and connected to gauges which show the effects of adjustments for temperature range and for differential. This enables the instructor to present a step-by-step demonstration of what happens when an adjustment is made.

"With a separate board devoted this year to the temperature control, we feel that the domestic refrigerator operational demonstration board,

which formerly contained the control, gains greatly by simplification and will be much easier to understand than heretofore," Mr. Baxter pointed out.

"By the addition of certain parts, the giant control and the control demonstration board can be made into a commercial control demonstrator. There's also a new commercial refrigeration demonstration board, on which is mounted a compressor, fan-cooled condenser, heat exchanger, gauges, and electrical meters.

"Thus the operation of the unit can be explained, checks for efficiency can be made, and tests for capacity can be run while the instruments register head pressures and wattage. The adjustment of the expansion valve for super heat can be shown and the use of the heat exchanger demonstrated," the Westinghouse service manager said.

"These new school materials," he continued, "plus an analyzer demonstrator for visualizing the checks of the electrical circuit and the new sound slide film on the refrigerator temperature control, make our refrigeration school more valuable than ever before, we believe."

Conventional laundry equipment will be featured using operational boards and large charts. School equipment will show service adjustments on all models produced.

The 1945 Conservice schools will also include a new Laundromat operational demonstration board, hooked up to a Westinghouse automatic washer. When a part of the board is operated, the Laundromat goes into that part of the cycle governed by the control of the board.

The action of the water baffle and the operation of the thermostats are

shown on the new electric water heater operational board.

Large trouble diagnosis charts, 25 x 35, some in four color, some in black and white, are available for each session of the two schools. These include 24 charts on domestic refrigerators, covering the cycle of operation, the temperature control, unit troubles diagnosis and correction, and analyzer checks of the electrical circuit; 17 charts on refrigeration specialties; 25 on the electric range; 16 pertaining to electric water heaters, 22 on water coolers, 14 on milk coolers, and 11 on portable air conditioners.

True and false quizzes, similar in scope to the popular checks used at the end of each session in former Conservice schools, are again included in the Westinghouse instruction material.

Westinghouse distributors will begin dealer and utility field previews April 2, Mr. Baxter said, and plan to hold approximately 300 schools for more than 10,000 service men and women throughout the country. In 1944, 242 schools were conducted, with an attendance of 8,819 persons.

S. K. Culver Forms Own Business In Chicago

CHICAGO—Sydney K. Culver, Empire Cooler Service Co. special service and sales engineer for the last 12 years, has resigned to establish his own refrigeration and air conditioning equipment company at 310 S. Michigan Ave. here.

Mr. Culver has been responsible for development of a number of the major refrigeration installations in the industrial Chicago area including plants of Inland Steel Co., American Brake Shoe Co., Taylor Forge & Pipe Co., Republic Steel Corp., U. S. Steel Supply Co., Jones & Laughlin Steel Corp., Ekco Products Co., Ryerson Steel Co., and Danly Machine Specialty Co.

The newly organized S. K. Culver Co. will distribute all types of commercial water coolers covering film processing, cafeterias, bakeries, bottlers, X-ray laboratories, and for air conditioning and special industrial installations.

Propeller Fan Association Elects New Officers

ST. LOUIS—H. M. Guilbert of the B. F. Sturtevant Co. was elected president of the Propeller Fan Manufacturers Association at the group's recent annual meeting held at the Hotel Statler here.

E. C. Englert of Hartzell Propeller Fan Co. was chosen vice president. V. C. Shetler continues as secretary-treasurer.

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BOILING POINT TEST

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ACIDITY TEST

2. The acid content in a sample of known weight must not exceed 6 parts per million; low acidity prevents copper plating and oil sludging.



MOISTURE TEST

3. The moisture in a sample of known weight must not exceed 80 parts per million; — low moisture prevents freezing at expansion valve and refrigerant break-down.

The name "V-METH-L" on the cylinder is your guarantee of quality. Sold by refrigeration supply jobbers everywhere.

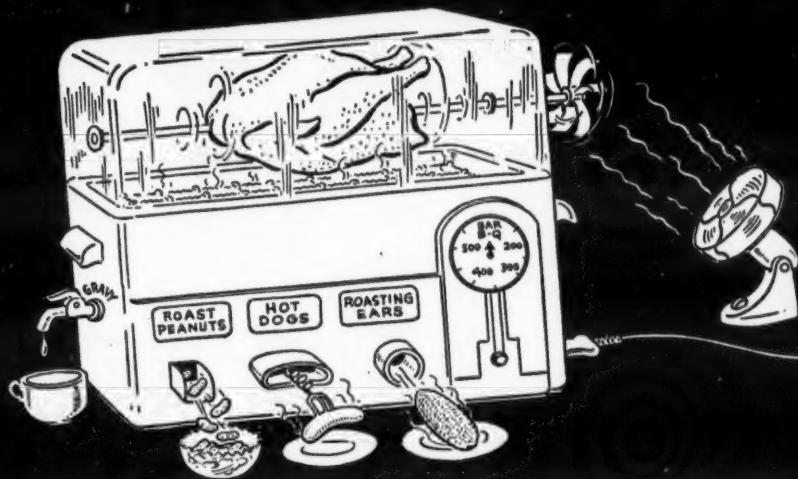
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Designers may disagree about "SUPPLEMENTARY FEATURES"



... but they all know an **ELECTRIC ROASTER** MUST HAVE GOOD INSULATION

Electric Roasters, like modern Electric Ranges, have done much to demonstrate the value of good thermal insulation. Both use "stored heat" to do much of the cooking, making possible greater efficiency and lower operating costs.

Naturally, good insulation in an Electric Roaster pays handsome dividends to all concerned. Homemakers appreciate operating economy in their roasters. They also appreciate uniform cooking results... and a cool kitchen.

This, in turn, makes for satisfied customers, the biggest asset that any retailer or manufacturer can have.

Fiberglas® Insulating Wool, Type TW-F, has long been the outstanding insulation for Electric Roasters. High in insulating qualities, inorganic Fiberglas is clean, chemically stable, immune to moisture, is odorless and does not absorb odors. It is light in weight (important in roasters). It is also resilient—doesn't settle or pack down. This resiliency permits instal-

lation at any density to meet specific requirements for thermal efficiency.

Yes, Fiberglas is an efficient "lifetime" insulation. If you're thinking about Electric Roasters (or similar Household Equipment) for early post-war production, Fiberglas Insulation deserves a place in your plans.

For full details regarding Fiberglas Insulation, write Owens-Corning Fiberglas Corporation, 1848 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada Ltd., Oshawa, Ont.



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Hawaiian Islands Will Present Big Postwar Market For Air Conditioning Installations, Ramsey Thinks

HAWAII — (Special) — American Factors, Ltd., has purchased all capital stock, physical assets, and goodwill of W. A. Ramsey, Ltd., island distributor for the entire General Electric line, as well as many auxiliary mechanical products, according to a recent statement by American Factors executives here. Under terms of the purchase the Ramsey company will continue to operate as an independent merchandising and contracting organization with no change in personnel, it was announced.

Since the deal was consummated

some weeks ago the entire refrigeration and air conditioning department of American Factors, Ltd. has been liquidated, the principal account, Airtemp Division, Chrysler Corp. having been taken over by von Hamm Young, Ltd., Frigidaire household and commercial refrigeration distributor here. Joe E. Rubenson, manager of Factors refrigeration department continues with the company in its hardware department.

Executive personnel continuing in charge of W. A. Ramsey Co., Ltd., include W. A. Ramsey, president; Paul Johnson, vice president and gen-

eral manager; W. M. Summerell, manager commercial refrigeration and air conditioning; George Rinker, manager household appliances; Henry Wilson, chief engineer; William Bougher, manager service shop, and Richard Nolan, air conditioning service manager. The company now employs a service and installation force of from 20 to 35 men.

According to W. M. (Bill) Summerell the Ramsey company installed some 1,025 hp. of air conditioning in the two years prior to Pearl Harbor in a market which contained only approximately 1,500 installed hp. at

Ramsey Offices Are Air Conditioned



Interior of the modern general offices of W. A. Ramsey, Ltd., G-E distributor in the Hawaiian Islands. Note the G-E self-contained packaged air conditioner in the background. The company handles the complete G-E household, commercial, and air conditioning line.

that time. Since the war began the company has installed some 1,500 hp., making a total of 2,525 hp. installed in the islands by Ramsey company to date. This includes General Electric air conditioning equipment and Carbondale-Worthington central station systems.

While the installations made by the company during the past two years for the army and the navy both ashore and afloat must, of necessity, remain a military secret, the Ramsey organization made important installations before the war that point to a splendid postwar market in the islands.

Cooling systems were placed in the four theaters of the Consolidated Amusement Co. In two—the Toyo and the Varsity, both theaters were equipped with two G-E condensing units and approximately 38 sq. ft. of cooling coils, six rows deep. (All island installations should be equipped with deep coils, because of the very high humidity encountered during the long summer season.)

In the Kuhio and Dillingham Boulevard Theaters, the systems in each have G-E 30-hp. condensing units, served by one dual surface G-E evaporative condenser. On these theaters a 5-hp. fan delivers an air supply of approximately 30,000 c.f.m.

One of the largest jobs tackled by Ramsey, Ltd. was the air conditioning of the Mutual Telephone Co.'s building. This was equipped with two 60 hp. and one 30-hp. condensing unit, while auxiliary pumps, fans, and other equipment ran the total horsepower up to 215. A chilled water job, the building was "zoned" with 11 G-E conditioners equipped with water coils serving various sections of the building.

During the same period self-contained store cooling units were installed in a number of military buildings, and also in the Flander's Mens' Shop in Waikiki; the dispatch room of the Honolulu Police Court; the Adorable Dress Shop; general offices of the Waldron, Ltd., importers; and the Kaneohe Branch of the Bank of Hawaii. Two 10-hp. self-contained air conditioners were also installed in Patten's Book store. Here the conditioners were mounted on the mezzanine, and the condensing units located in the basement. The system was equipped with a locally made cooling tower.

In the transportation field Ramsey, Ltd., installed G-E equipment in the instrument room of Hawaiian Airways, Inc., and aboard the S. S. Haleakala, owned by the Inter Island Steam Passenger Boat Co. The boat was equipped with two 3-hp. condensing units serving remote conditioners.

Bowling is as popular on the island as on the mainland, and the 16-alley

Casino Bowling building was equipped with two 15-hp. condensing units and two G-E HD 400 conditioners. The alley is ultra modern in every respect.

Other important installations made here by Ramsey, Ltd., include Patton's Wholesale Store, government operated photostatic laboratories, branches of the Bank of Hawaii, and numerous prominent residences.

Along with the basic G-E and Carbondale lines, W. A. Ramsey Co., Ltd., are local distributors for American Air filters, Barber Coleman Controls, Anemostat high velocity air diffusers, Buffalo Forge fans, Seeger commercial refrigerators, and Mueller Brass Co. pipe and fittings.

In discussing the postwar prospects of the Ramsey company, Mr. Paul Johnson, general manager, stated that it would be the policy of Ramsey company to handle mainland lines, direct, and not through export organizations.

The islands are no longer "export" territory in any sense, Mr. Johnson asserted, as operation of the territory does not require export crating, differences in rates of exchange, or language difficulties. He also pointed out that it is now possible to reach any point on the mainland by telephone within a few hours and that Hawaii can now be reached from the mainland by air in a very short time.

"It is our understanding," Mr. Johnson said, "that at least one large manufacturer of refrigeration and air conditioning plans to open a branch here, and we believe others will assign factory men to the Hawaiian islands, as they would assign domestic men to any other territory. This is no longer a 'foreign' territory, and postwar it will definitely be part of the mainland distribution setup. For this reason we plan to handle all accounts direct, and not through export agencies."

Mr. Johnson is enthusiastic about the possibilities here postwar. Postwar plans for the company include the distribution and servicing of the full line of G-E household appliances on a new and greater scale than ever before.

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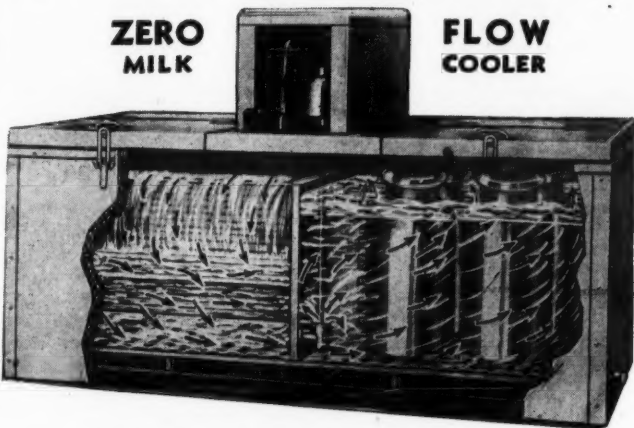
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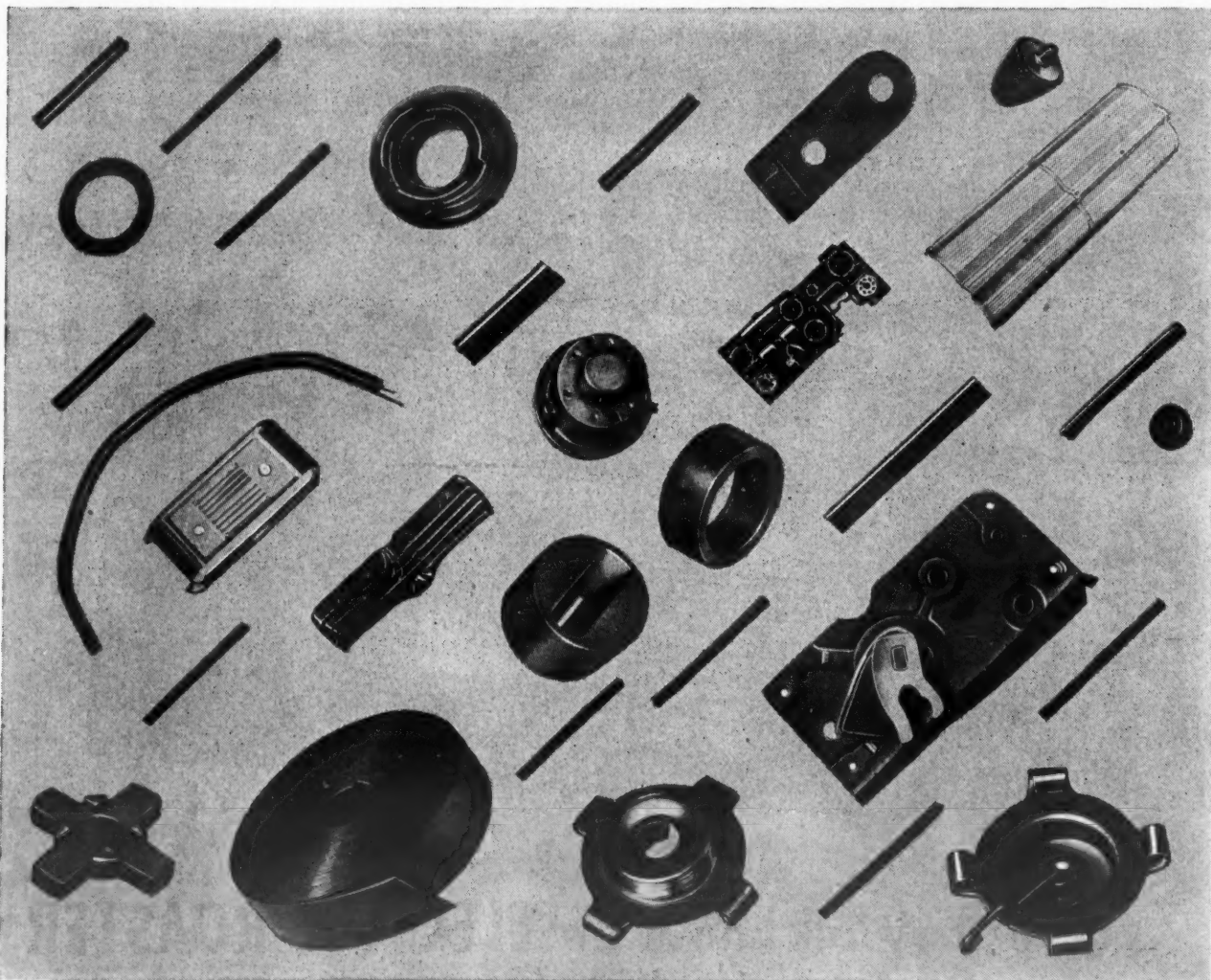
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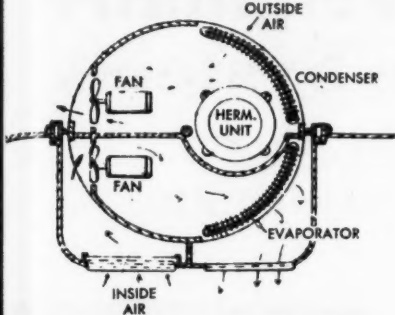


Fig. 1—For summer cooling, using 100% recirculated air, the conditioner is in the above position. Inside air is pulled through the intake filter by the fan, and pushed across the curved evaporator coil to be discharged back into the room. Outside air is circulated through the condenser coil.

Winter Heating

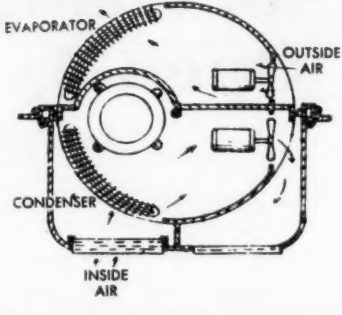


Fig. 2—For winter heating, using 100% recirculated air, the conditioner's position is reversed from the cooling position shown in Fig. 1. Inside air is drawn through the filter and heated as it passes through the warm condenser. Cool outside air gives up heat to the evaporator coil.

Winter Ventilation

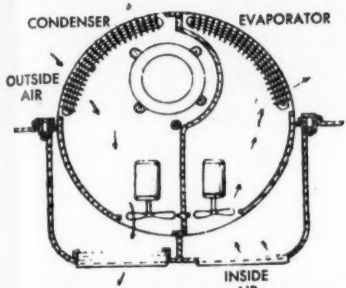


Fig. 3—In this position the conditioner is supplying 100% fresh warmed air to the room during the winter months, but the objective is to ventilate the interior rather than to heat it. Outside air passing through the condenser is somewhat warmed, but the total heat output of the conditioner is obviously not so high as if 100% recirculated air were used, as in Fig. 2.

Partial Ventilation

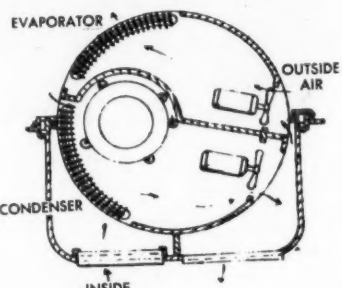


Fig. 4—Because the conditioner can be rotated, the ratio of recirculated air to fresh air can be changed readily from 0% to 100% under both cooling and heating conditions. In the above position the conditioner is heating the room, with a small percentage of outside air entering at the left and a corresponding percentage of air being exhausted at the right.

The unit will operate satisfactorily with outdoor temperatures as low as 20° F., according to Mr. Kirkpatrick.

In addition to straight summer cooling and winter heating this conditioner can also provide other conditions of air, such as shown in Figs. 3 and 4. By rotating the housing 90° clockwise from the position shown in Fig. 2 the conditioner is made to supply 100% fresh warmed air to the room during the cooler months (see Fig. 3).

The fact that this conditioner can be rotated likewise permits variable proportions of fresh and recirculated air to be introduced. This is illustrated in Fig. 4, with the conditioner positioned in the heating cycle.

Similar operation is permitted when the housing is shifted 180° to provide cooling.

Present design of the conditioner does not call for any thermostatic

control, although the latter could be readily installed, said Mr. Kirkpatrick. To operate the unit one simply turns it on. Power is supplied to the compressor motor and fan motors through a slip ring beneath the circular housing.

This arrangement could be changed by substituting a coiled wire connection to the unit if stops were installed to prevent the housing from being revolved more than one complete turn, pointed out Mr. Kirkpatrick.

No details regarding actual production of this conditioner have been announced by Mr. Kirkpatrick, but he believes that quantity production should permit the unit to be sold at a price comparable to a domestic refrigerator, perhaps in the \$150 to \$200 brackets.

Size of the circular housing could be reduced from the present 29 in., according to Mr. Kirkpatrick. If the

housing were pivoted at top and bottom, thus eliminating the center post, the hermetic unit could be moved nearer the center and the overall diameter considerably cut down.

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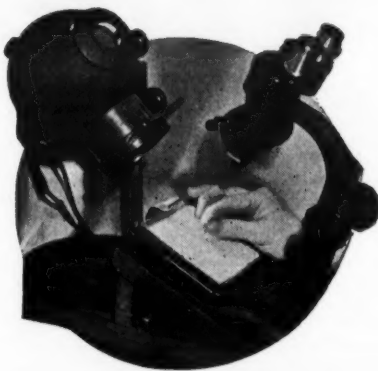
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Proposed Window Conditioner Revolves To Provide 'Reverse Cycle' Heating

DETROIT—Development of an unusual window-type room air conditioner designed to provide "reverse cycle" winter heating and capable of supplying infinitely variable proportions of fresh and recirculated air was revealed by the inventor, Henry O. Kirkpatrick, at a recent meeting of the Detroit Section, American Society of Refrigerating Engineers.

As can be seen in the drawings, unusual feature of the conditioner is that it is mounted in a circular housing which can be rotated. Rotating the unit changes the direction of airflow to permit shifting from summer cooling to winter heating and also permits variations in the amounts of inside air recirculated and fresh air introduced, explained Mr. Kirkpatrick, who is chief refrigeration engineer for Advance Mfg. Co. here.

The conditioner is designed for installation in conventional double-hung window frames of varying widths. Overall height of the unit is approximately 16 in. and the diameter of the circular housing is about 29 in.

Interior side of the conditioner has a rectangular hood fitted with two grilles, one for intake and one for exhaust. While present design calls for a filter over just one of the grilles, filters could be incorporated in both, said Mr. Kirkpatrick. Top section of the hood is hinged to permit access to the circular housing so it can be rotated.

Within the circular housing are mounted a 1/2-hp. hermetic compressor, two blower fans consisting of 6 in. 4-blade blower wheels powered by 1/100-hp. motors, and the condenser and evaporator coils curved to conform with the circular housing.

The housing is pivoted on a center pin. A partition running approximately through the center of the

housing separates the interior into two air compartments, each supplied with a fan to circulate the air. One compartment contains the hermetic unit and the condenser coil, and the other compartment has the evaporator coil.

There is also another partition between the circular housing and the interior hood which forms two separate air chambers within the hood itself to provide proper direction of airflow.

Operation of the unit is best described by reference to the drawings. In Fig. 1 the unit is positioned for summer cooling using 100% recirculated air.

To achieve heating effects during winter or between-season months operation of the unit is reversed. But instead of reversing the flow of refrigerant the airflow is reversed in simple fashion by rotating the circular housing clockwise 180° to the position shown in Fig. 2.

In this connection Mr. Kirkpatrick emphasizes the advantages to be gained in "reverse cycle" heating by changing the direction of airflow instead of reversing the refrigerant flow.

"For one thing," he said, "usually a complicated system of valves is required to switch refrigerant flow from cooling to heating cycles. Then, too, evaporator and condenser coils are most efficient in operation when designed for one specific function. If a coil is used alternately as an evaporator and condenser it is usually a compromise between the most efficient design for an evaporator and that for a condenser."

Fig. 2 illustrates how the conditioner is employed for supplying heat to a room by 100% recirculation of room air over the condenser coil.

Can YOU service fractional-hp motors QUICKLY and PROFITABLY without skilled repairmen?

YOU CAN if the motors are G-E—and if you use our Factory Service Plans

If you're in the business of servicing electric-motor-driven appliances, you're undoubtedly aware of the increasing demands for electric-motor service. Perhaps, too, you are finding it difficult to meet these demands because of a scarcity of trained repairmen. But despite a shortage of skilled manpower, you can get your share of this profitable, growing service business if you are in a position to give quick, satisfactory service.

These time-tested Plans enable you to repair or replace practically any G-E fractional-hp motor that has become inoperative, regardless of the type or make of appliance on which it is used. What's more, you can provide this service quickly, economically, and expertly without skilled repairmen. G.E. does the actual repair work promptly and reasonably, and you know your profit beforehand.

Back of these Plans is an exchange stock representing more than 1000 different motor models, to keep in operation the G-E motors on several million appliances.

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Investigate these simple, profit-making Factory Service Plans. Like hundreds of other dealers, you'll find they're a sure way of maintaining business now; a means of building and holding trade for the future. Ask your appliance manufacturer or distributor for details today. Or just fill in and mail the handy coupon. You'll be glad you did!



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1. THE EXCHANGE PLAN

Covers the most commonly used types of G-E fractional-horsepower motors. Makes possible immediate replacement, from G-E field stocks or from your own buffer stock. Replacement motors carry the G-E new-motor warranty, except for finish.

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Provides for factory repair of semistandard G-E fractional-hp motors not covered by the EXCHANGE PLAN, at established prices. Enables you to make quick, accurate, on-the-spot estimates. Repaired motors carry the G-E new-motor warranty, except for finish.

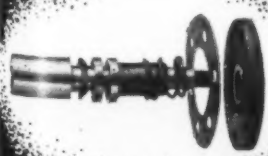
3. REGULAR REPAIR PLAN

Covers fractional-hp motors not included in either of the other two plans, except extremely old or obsolete models. Inspection is made at the factory, and a cost estimate is submitted before work is started. These motors also carry the G-E new-motor warranty, except for finish. This plan rounds out this G-E service and enables you to handle repairs on practically any G-E fractional-horsepower motor.

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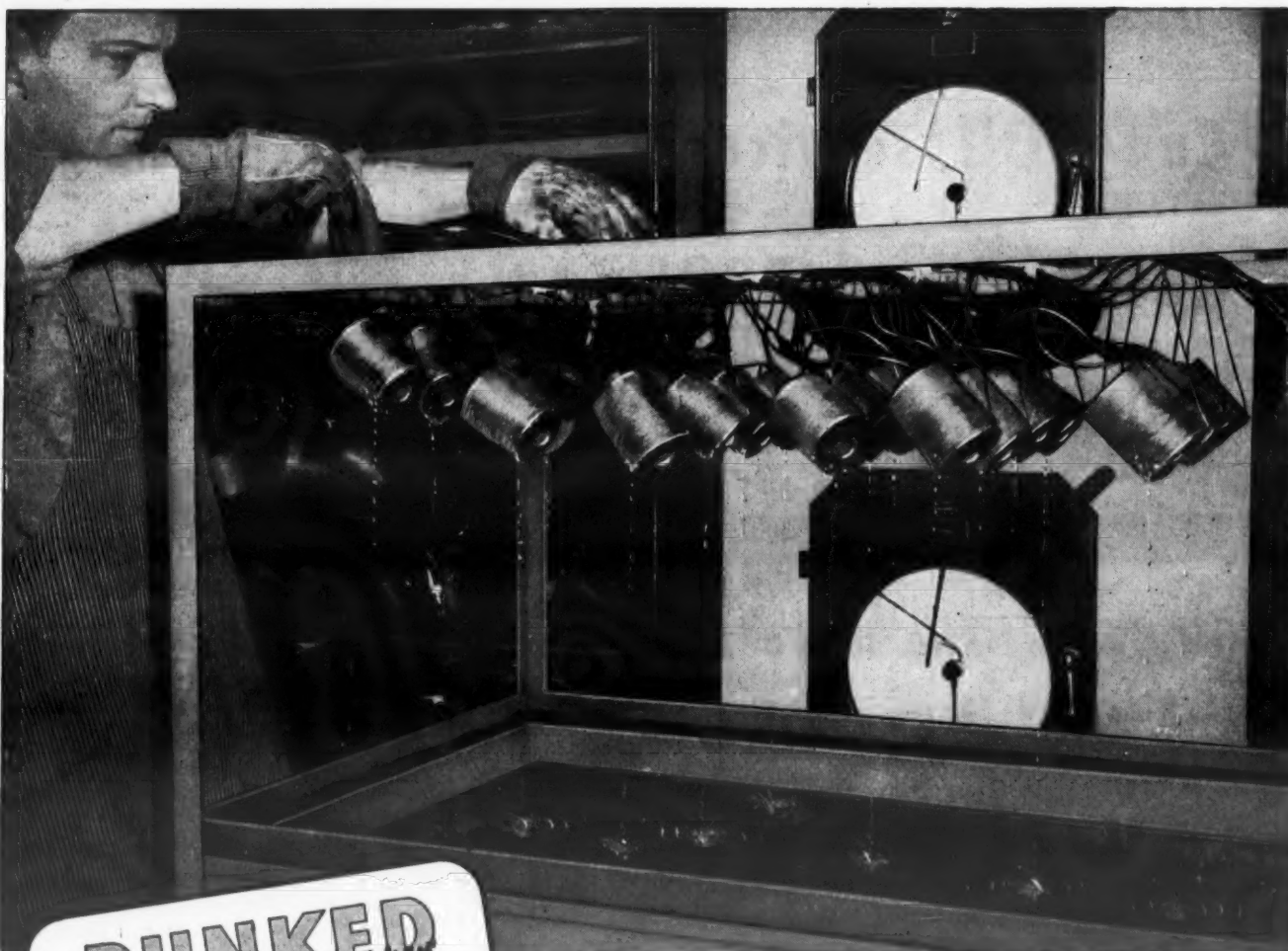
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During the "dunking" process, the insulant finds its way into every tiny crevice of the coil, efficiently sealing it against moisture.

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baking ovens, plus a series of exacting tests to insure efficient insulation, the coil is ready for installation in your Alco Solenoid Valve.

This thorough insulation is another reason why Alco Solenoid Valves can be depended upon for the trouble-free performance that gives you efficient refrigeration. See your Alco jobber, Alco Valve Company, 853 Kingsland, St. Louis 5, Mo.



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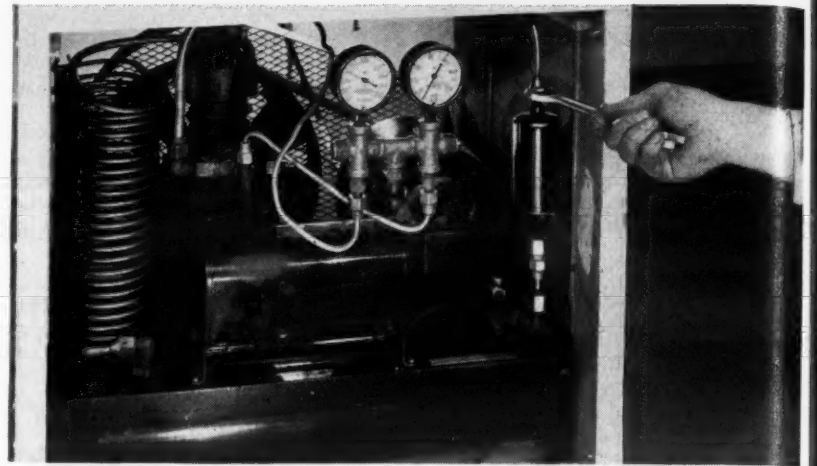
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Servicing Frigidaire Open-Type Systems

Instalment No. 7

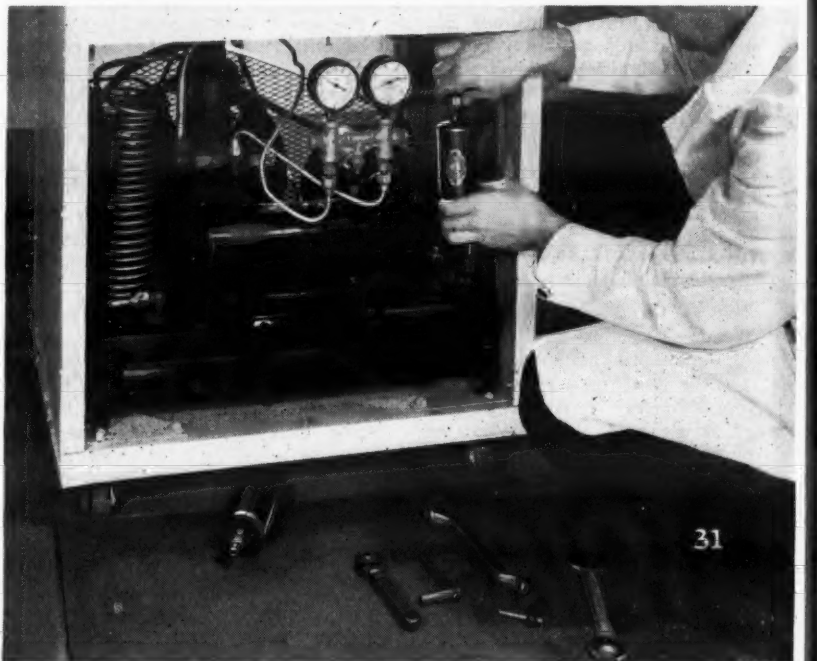
26—Locating and Replacing Plugged Strainers



First, test filter at receiver which can be easily done by loosening the liquid line flare nut. Complete or partial lack of refrigerant indicates a plugged strainer at this point, in which case it must be replaced.

Since the strainer is located between the source of refrigerant at the compressor and the inlet at the boiler, a plugged condition will naturally cause a complete pump down of the freezer and consequently a complete lack of refrigeration. To proceed with the replacement operation, first—

27—Removing Old Filter



Remove old filter. This is accomplished by closing liquid line connections at receiver and freezer, disconnecting line completely at receiver, and removing as shown. The replacement filter is then installed, the liquid line connections are opened, and the unit is again placed in operation.

If the test had shown that the receiver filter was not plugged, remember that there are filters at the freezer, and they may require attention. The first thing to do in this event is to look for frosted liquid line valve at freezer.

28—When Liquid Line Valve Is Frosted



(Continued on Next Page)

Servicing Frigidaire Systems

(Continued from Preceding Page)

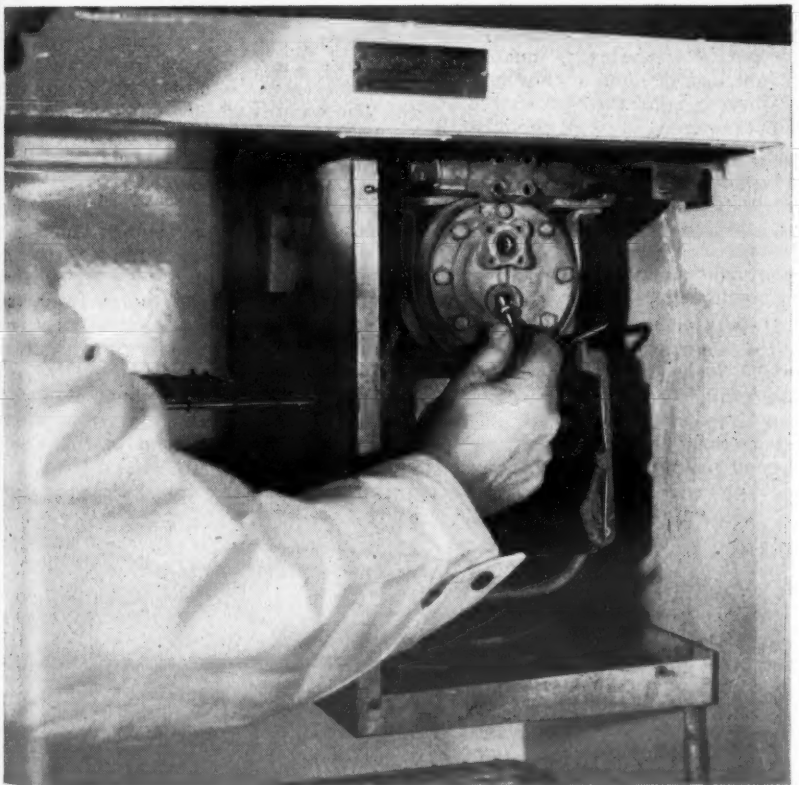
Look for frosted liquid line valve at freezer, which would indicate a partly plugged strainer at this point. When such indication is given, close liquid line valve at receiver and block switch shut to enforce operation. When frost forms and then disappears on the liquid line near the receiver, it is an indication that this line has been cleared of refrigerant.

In case, however, the strainer is completely plugged, clear the line of refrigerant by loosening the flare nut at the receiver connection until the purging is accomplished.

Having cleared the line of refrigerant, proceed to remove the liquid line from the freezer after closing the freezer valve and the valve on the receiver. Then disconnect line from valve and—

29—Installing New Strainer

Install new strainer after taking out old one. Now, if on reassembling the freezer valve and line and operating the unit, a plugged strainer condition is still indicated, it will be necessary to—

30—Removing Inside Strainer

Remove inside strainer, for some freezers are equipped with both an "outside" and an "inside" strainer, the latter of which is located in an especially provided tapped hole in the header into which the liquid line valve is screwed. In such cases it is necessary to proceed as in changing a float valve—that is, by pumping down the freezer and removing both liquid and suction line valves from the float header. Then, using a small bolt or screw driver, remove this strainer, as shown.

It is not necessary, by the way, to replace this strainer. Simply remove it and replace the "outside" strainer with an oversize one, which will give completely satisfactory results. When the new strainer has been installed the header valves are replaced and both they and the valve at the receiver are opened. Then, make leak test, remove the gauges, and place the unit in operation.

One of the largest exclusive refrigeration
stocks in America

Orders shipped same day as received

T. W. BINDER CO.

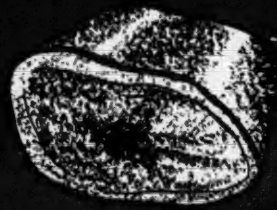
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NEWARK 3, N. J. - Mitchell 2-5346

NO. 3 OF A SERIES

AIR BLAST

A BASIC REFRIGERATION PROBLEM

**AIR SPEED, AND
AIR VOLUME, MUST BE
CAREFULLY CONTROLLED**

Product dehydration (drying out)—with its consequent weight loss, is directly related to air speed. A carefully modulated flow of air is desirable in the storage of products with a moisture content. A strong blast of air, on the contrary, leads to rapid and excessive drying.

M&E, in developing its post-war cooling units for meat and provision cabinets, has utilized the most approved principles of controlled air flow.



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MANUFACTURERS OF
CONDENSING UNITS
AND FIN-TYPE COIL
PRODUCTS

BECAUSE IT'S ALL

One piece

(fins are extruded from
original tube)

(Fins can be end-stripped)

**TRUFIN IS NOT AFFECTED
BY VIBRATION OR SUDDEN HEAT CHANGES**

TRUFIN functions with high efficiency under most conditions encountered in heat exchange processes. Being integral—extruded from the original tube wall, it is endowed with the distinctive quality of providing performance of undiminishing efficiency for years and years. This means economy and constant dependability of service.

TRUFIN is available in 3/8" to 1" O. D., with fin heights ranging from 3/64" to 3/8"—with varying spacings. It can be bent and formed, and otherwise handled much like plain tubing.

Low fins provide three times as much surface as plain tubes, and are most practical and efficient for use in shell and tube condensers, or in liquid-to-liquid heat exchangers. They will deliver more BTU's per dollar.

High fins are exceptionally efficient in applications where vibration and sudden heat changes are a factor.

Send for "Report on TRUFIN"—a technical digest of the efficiency of finned tube.

TRUFIN IS BEING USED TODAY
wherever the highest efficiency
is demanded.

Refrigeration • Chemical Industry

Air Conditioning • Motive Power

Navy • Power Field • Oil Industry

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BUY MORE BONDS

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TUBE DIVISION

CALUMET & HECLA  CONSOLIDATED COPPER COMPANY

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NIAGARA

DUO-PASS AERO-CONDENSER

• Lowers condensing temperatures, saves power and water, increases the capacity of present equipment. Patented Duo-Pass prevents scaling of condenser tubes.

NIAGARA BLOWER COMPANY
25 Years of Service in Air Engineering
6 E. 45th St., New York 17, N. Y.

YODER

THE HUBBELL EVAPORATOR PLATE

Every square inch of surface is prime heat pick-up.

For Frozen Food Lockers, Deep Freeze Cabinets, Milk Coolers, Fruit and Vegetable Counters, etc. Write for complete information. It will pay you.

ENGINEERING SERVICE INC.

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YODER REFRIGERATION INC., Manufacturers

REFRIGERATION by CURTIS

Write for complete information.

Bulletins C-14-M, C-58, C-68-C

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1970 Kienlen Avenue • St. Louis 20, Mo.

Evaporative Units Cool Water Used to Quench Armour-Piercing Bullets

LONG ISLAND CITY, N. Y.—Evaporative cooling units are playing a novel role in the production of 20 mm. armour-piercing bullets in the U.S.L. Battery Co. plant here. The Carrier units are used to cool quenching water in the heat treatment of bullets.

The U.S.L. Battery plant operates 10 electric induction heat treating machines, four of these with two elevators and six with four elevators. Each elevator, containing 10 bullets, is arranged so that the bullets pass into an electric field, where they are heated for 90 seconds.

After heating, the bullets—still on the elevators—are moved into the quenching area where 20 gallons of water circulate over them. The quenching prevents the heat received in the electric field from penetrating inward and assures that the heat treatment is limited to the surface of the bullets.

The temperature of the quenching water must be kept within a specified range. If it becomes too cool the bullets tend to crack; if too warm, the process is so slow that the treatment loses some of its effectiveness and production schedules cannot be maintained. The quenching water cooled in the evaporative units is held between 80° and 95° F.

The water to be cooled is circulated at a rate of 500 gallons per minute through coils whose external surfaces are kept wet. Air is circulated over the wetted surfaces causing evapo-

ration of the surface moisture. The heat required to change the moisture into vapor is removed from the water inside the coils, that is, from the quenching water. The water thus cooled is delivered to a 5,000-gallon storage tank from which it is drawn to serve in the heat treatment process.

The evaporative-cooled water at the U.S.L. Battery plant performs three functions. Of the total of 500 g.p.m., 320 gallons quench bullets, 120 gallons serve the hydraulic hoists in the heat treating machine, and 60 gallons are used for jacket cooling water for the heat treating machines.

Removing the heat from the water permits the same water to be used over and over again, thus affording the savings (estimated at \$800 per month) over using "tap" water which is wasted after each quenching operation.

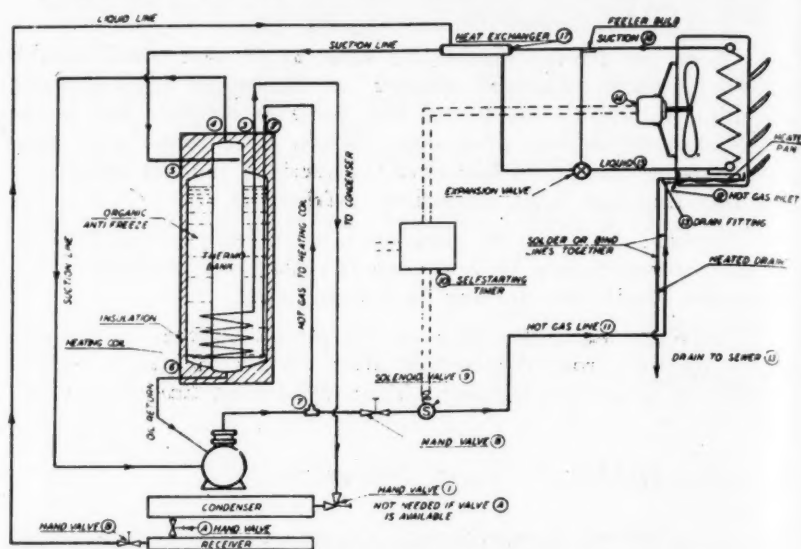
This cooling equipment at U.S.L. Battery was installed by Consolidated Conditioning Corp., Mount Vernon, N. Y.

Mattoon Heads Weatherhead Industrial Relations

CLEVELAND—Charles S. Mattoon, for 18 years director of industrial relations for Curtiss-Wright Corp.'s airplane division in Buffalo, has joined Weatherhead Co. here in the same capacity, announces A. J. Weatherhead, Jr., president.

Regarded as a pioneer of the aircraft industry and an authority on vocational guidance, Mr. Mattoon is the author of *Your Career in Aviation*, which was published in 1939 and used as a standard reference text in many schools.

System Using 'Thermobank' Defrost Unit



This schematic diagram indicates how automatic defrosting of commercial systems is obtained through use of the "Thermobank" developed by the Kramer-Trenton Co.

'Hot Gas' Heat Is Stored for Automatic Defrost In System Developed by Kramer

TRENTON, N. J.—Introduction of a completely automatic defrosting method for refrigerating systems operating at below-freezing temperatures has been announced by the Kramer-Trenton Co. here.

This defrosting method involves the use of the company's "Thermobank," which is a heat exchanger combined with an antifreeze solution to store heat for the defrost cycle.

The inner tank of the Thermobank is connected to the low side of the refrigerating system. Surrounding the inner tank is a hermetically sealed outside tank permanently filled with a non-corrosive, organic antifreeze solution, explains the company.

Submerged in the antifreeze solution is a heating coil which is connected between the compressor discharge side and the condenser inlet. The entire assembly is insulated to prevent loss of heat in cool surroundings and is contained in a rigid steel shell arranged for wall mounting.

During normal operation the system operates as a conventional refrigeration plant, except that hot gas from the compressor discharge passes through the Thermobank, giving off some heat there, before going into the condenser.

At established intervals a timing device energizes a solenoid valve which opens and permits hot gas from the compressor discharge to enter the evaporator coil. The hot gas defrosts the coil, but in so doing is condensed into liquid form. The

liquid refrigerant flows from the coil through the Thermobank where it is evaporated by the heat stored in the solution there, and proceeds as a gas to the compressor intake.

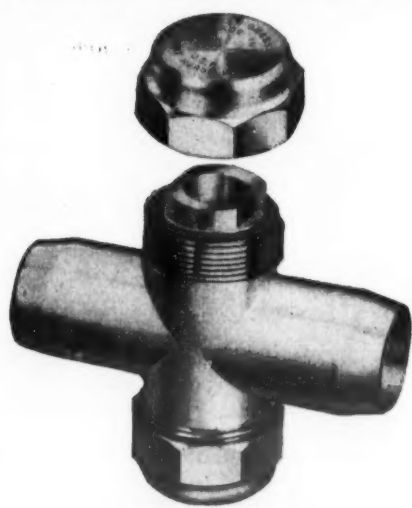
When defrosting is complete the timing device closes the solenoid valve and restores the system to normal operation. Short defrost cycle and comparatively small temperature rise during defrost are claimed by the company. A reproduction of a recording chart in the company's sales literature indicates a rise from 0° to about 11° F. during a 10-minute defrost cycle.

With the Thermobank system the compressor operates during the defrost period while the fan is off. If the compressor is off when defrost starts, and is normally controlled by a low pressure cutout switch, the opening of the solenoid valve will cause the crankcase pressure to rise sufficiently to start the compressor. The compressor can be controlled by either a pressurestat or a combination of a pressurestat and thermostat.

Only one Thermobank, if of the proper size, need be used for a single compressor, even though the system may include more than one evaporator, the company says. All evaporators supplied by the same compressor are defrosted at the same time, even if they may be maintaining different temperatures.

The company emphasizes that no brine spray, water spray, or electric heaters are employed in this defrost method.

MUELLER BRASS CO. LIQUID INDICATORS WILL NOT LEAK



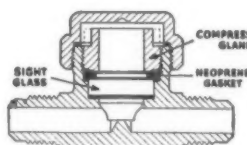
DOUBLE PORT LIQUID INDICATOR



WITH
SEAL CAP

The improved design of our liquid indicators is effective assurance against refrigerant leakage around the sight glass. The sight glass is sealed into the forged brass body by a heavy Neoprene gasket which, in turn, is compressed by a packing gland, which forces the pliable gasket along the sides of the glass and produces a perfect seal.

Mueller Brass Co. Liquid Indicators are made in a complete range of styles and sizes. The



seal cap and open port type may be installed where light conditions are favorable. Where the light is poor, we recommend the use of our double port liquid indicators

illustrated here. By flashing a light through one port, the exact condition of the refrigerant may be determined through the other port.

The new design of the compression gland permits the use of standard wrenches for tightening.

NOTE: All models of Mueller Brass Co. filters and line strainers may be obtained with female flare connections on one end. This makes it possible to assemble any desired filter to a liquid indicator for installation in the liquid line of the system.

MUELLER BRASS CO.

PORT HURON, MICHIGAN

What's YOUR Shelving Problem?

EXPERIENCE... QUALITY... SERVICE—that's what you get when you let Union Steel Products work with you on shelving for your post-war models. Our men have had years of experience in design and manufacture... our plant has every needed facility to turn out attractive, strong and correctly designed shelves and baskets. Let us suggest ways to turn out better shelving at lower costs to your post-Victory refrigerators. Write for our new brochure on Refrigerator Shelving.

UNION STEEL PRODUCTS CO.
Albion, Michigan

OPA 'Search' Methods Led to Unfavorable Newspaper Publicity, Locker Men Say

(Concluded from Page 1, Column 4)

ducted an informal press conference in Chicago.

"The press representatives extended every courtesy and a friendly attitude to us, and they were eager to hear the locker story in general and particularly as to the 'plentiful meat supply in lockers,'" said Mr. Guggedahl.

Following this press conference further stories on the locker plant investigation appeared in many newspapers, but these articles were much more favorable to the industry, he indicated.

One newspaper estimated that the total poundage of meat in lockers was but 4% of the annual meat supply of the nation. Obviously, said Mr. Guggedahl, readers will realize that locker plants cannot be an important factor in the meat shortage.

At the conference Mr. Guggedahl told newspaper men that the nation's 2,000,000 individual lockers held about 200,000,000 pounds of meat.

"The locker plant operator has little control over what his customers place in their lockers," was how Mr. Guggedahl was quoted in a *New York Times* story on this meeting, "but most of them guard against black market meat or hoarding by warning their customers. There is little hoarding being done in the lockers as the meat in them will last a family for six or eight months."

As a result of this conference another newspaper credited an OPA regional official with this statement: "Preliminary reports showed that there has been little diversion of meat from civilian channels to the black market through the food locker industry."

Another favorable newspaper quotation cited by Mr. Guggedahl: "Perishable food is quick-frozen and stored in locker plants for future use, affording conservation of food for the customer."

The rights and responsibilities of locker plant operators under the food rationing system are being re-emphasized by the National Frozen Food Locker Association for its members, declared Mr. Guggedahl.

"Producers of food, and that means mainly farmers, are entitled to use the food they produce ration-free,"

he says. "A farmer can slaughter and sell meat to a non-producer, providing he files a slaughter certification with his local OPA board.

"And, of course, he must stay within the price ceiling on such sales and must also collect the full point value from the buyer. He is permitted to accept future valid stamps in such a transaction. In many sections of the country farmers have refused to sell meat to non-producers simply because they did not want to be involved in what they call 'government red tape.'

"For instance, in prewar days in Iowa, it was quite customary for a farmer to sell a quarter or side from a slaughtered beef, keeping the balance for his own use. Now he insists upon putting all of the meat from the carcass into his locker.

"This condition may not apply in exactly that manner in other sections of the country, particularly near metropolitan areas where the meat shortage situation seems to be more severe than in the agricultural areas.

"Locker plants engaging in retail or wholesale meat business must be registered for one or the other with their local OPA board," points out Mr. Guggedahl. "In this sense, such locker plants are engaged in one separate and distinct activity, namely, retail or wholesale trade. In either case they are governed by the usual rationing regulations as they apply to that retail or wholesale trade."

Higgins to Distribute Electromaster Line

NEW ORLEANS—Higgins Industries, Inc., of New Orleans, builders of famous invasion landing craft, postwar will act as distributor for Electromaster ranges and water heaters.

Gerald Hulett, vice president of Electromaster, in announcing the appointment, said that the Higgins territory will include Louisiana, southern and central Mississippi.

A new appliance division has been established by Higgins. Headquarters and display rooms will be in a modern air conditioned building, formerly the offices of the City Park plant.

In Cleveland Post



J. R. ROBERTS

Wood Conversion Names Roberts District Head

ST. PAUL, Minn.—Appointment of J. R. Roberts, long associated with the refrigeration and allied industries, as district manager of industrial sales in the Cleveland area, is announced by the Wood Conversion Co.

Mr. Roberts' initial association with the refrigeration industry dates back to 1931, when he was graduated from the University of Nebraska, college of engineering. His experience in the industry has been from the

factory to sales, installation and service, in and around New York City. Later he joined a Twin Cities distributorship as chief engineer and also trained dealer sales, and service men.

Mr. Roberts will introduce several new products to the industrial trade in addition to Balsam-Wool and Nu-Wood insulations. Among these are new types of blanket and bat insulation, special insulating fibres for refrigerators and freezers, a patented insulating fibre for lockers and cold storage plants, packing pads and felts, and wood fibre fillers for plastics.

He will make his headquarters at 8800 Kinsman Rd., Cleveland, Ohio.

Detroiters Meet April 13 To Form Local I.C.I.

DETROIT—A meeting to form a local chapter of the Indoor Climate Institute will be held Friday evening, April 13, in the auditorium of the Detroit Edison Co. here, sponsored jointly by the Electrical Association of Detroit, the Detroit Association of Warm Air Heating and Air Conditioning Contractors, the Master Plumbers Association, and other groups.

Principal speaker will be Paul B. Zimmerman, national president of I.C.I. And as a special feature Walt Disney movies on electricity, electronics, and controls used on bombers will be presented.

Board of governors of the National I.C.I., which is meeting in Detroit the same day, is expected to attend the evening meeting.

Dupont 1944 Production Highest In Industry

WILMINGTON, Del.—The largest production volume of any year in its history and the lowest operating income after taxes of any year since 1938 except one were disclosed in the 1944 annual report of E. I. du Pont de Nemours & Co., distributed to 87,138 stockholders.

Overall operating activity for the year reached \$962,217,000, a 3% gain over the previous year. Income from operations after taxes declined 8% to \$43,343,491. Net income from all sources, including operations, fees, and return from investments was \$80,870,106 after taxes.

This marked an increase of 16% over 1943 due to larger dividends from General Motors Corp. and reversion of \$5,251,800 from reserves, offset in part by increased costs of operation.

Average earnings of the company have declined 23% and dividends 35% in the three years since the United States entered the war, compared with the preceding three year period, the report showed.

Net earnings in 1944 amounted to \$6.60 per share of common stock, as against \$5.59 in 1943, \$5.07 in 1942, \$7.49 in 1941, \$7.19 in 1940, and \$7.66 in 1939. Common stock dividends aggregated \$5.25 per share and preferred stock dividends of \$4.50 were paid in 1944.

It was also announced that the du Pont company has passed the 100-mark in "E" awards and stars for war production. In all, 33 plants have received the "E," and a total of 70 stars have been conferred.

How Many?

One Locker-100 Lockers-a Carload?

When Wanted?

You set the time - We meet it.



MASTER FOOD CONSERVATORS

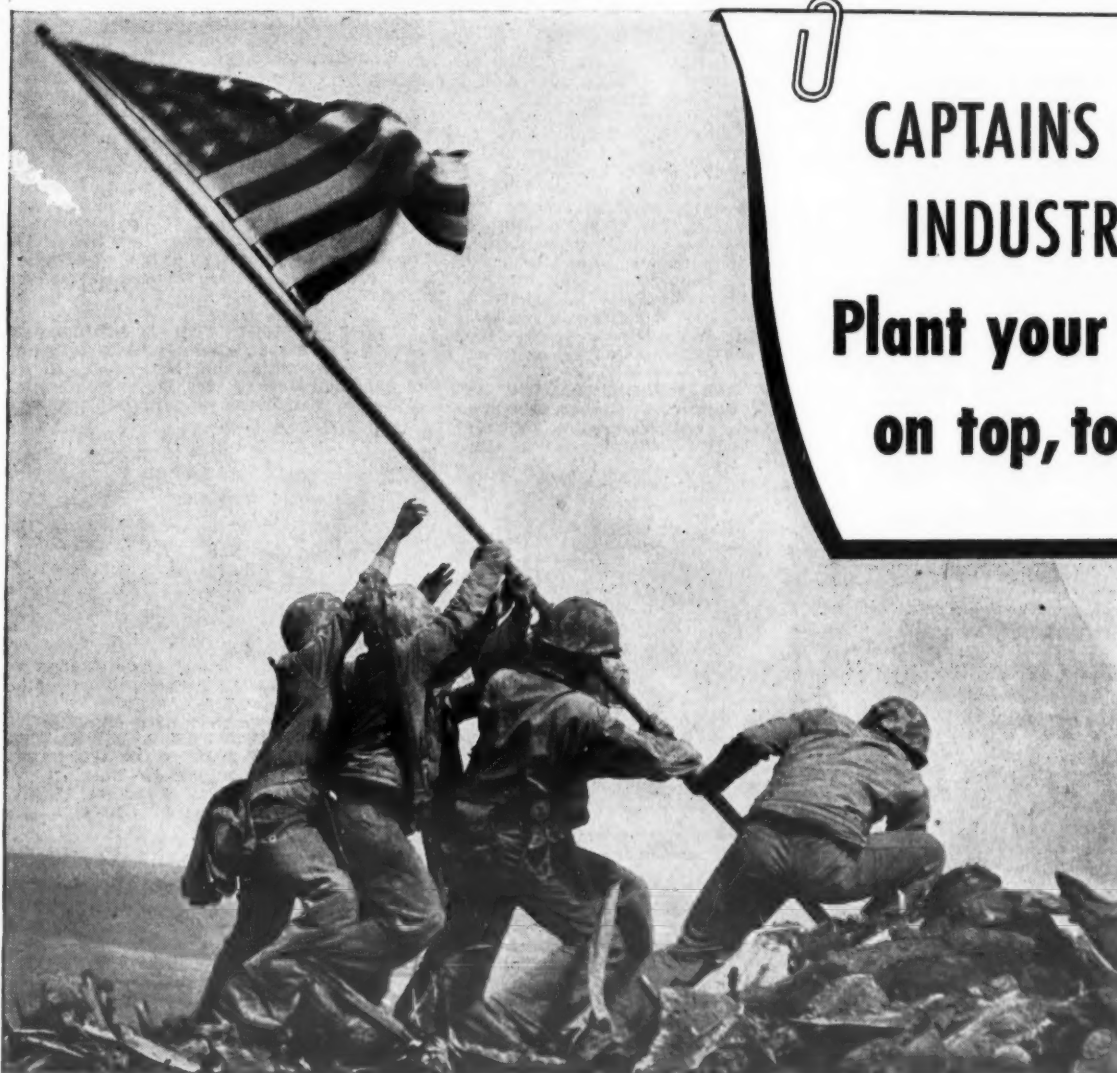
On Time
Any Time
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Endorsed by and sold
through distributors of
refrigeration and insulation.

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Member of Frozen Food Locker Manufacturers
and Suppliers Ass'n organized for your protection.

Over 700,000 Master Food Conservators in Use



CAPTAINS OF
INDUSTRY
Plant your flag
on top, too!

*This year we've
got to make 2=3!*

This year we've got to make 2=3! We've got to lend Uncle Sam in 2 chunks almost as much as we lent last year in 3. Which means that, in the approaching 7th War Loan, each of us is expected to buy a BIGGER share of extra bonds.

The 27 million smart Americans on the Payroll Savings Plan are getting a headstart! Starting right now they are boosting their allotments for April, May and June—so that they can buy more bonds, and spread their buying over more pay checks.

Our Marines went over-the-top at Iwo Jima in the greatest, and hardest, battle in the Corps' history. Now it's your turn! Your quota in the 7th is needed to help finish this war, side-track inflation, build prosperity. So, captains of industry, plant your flag on top—like the Marines at Iwo Jima!

This year we've got to make 2=3! We've got to lend Uncle Sam in 2 chunks almost as much as we lent last year in 3. Which means that, in the approaching 7th War Loan, each of us is expected to buy a BIGGER share of extra bonds.

CAPTAINS OF INDUSTRY—here's your Check List

for a successful plant drive:

- ★ Get your copy of the "7th War Loan Company Quotas" from your local War Finance Chairman. Study it!
- ★ Determine your quota in E Bonds—the backbone of every War Loan.
- ★ Arrange for plant-wide showings of "Mr. & Mrs. America"—the new Treasury film.
- ★ Distribute "How to Get There"—a new War Finance Division booklet explaining the benefits of War Bonds.
- ★ Circulate envelopes for keeping bonds safe.
- ★ Display 7th War Loan posters at strategic points.
- ★ And—see that a bench-to-bench, office-to-office 7th War Loan canvass is made.

The Treasury Department acknowledges with appreciation the publication of this message

SPECIFY...

DRYERS
THAT
BEAR
THIS
LABEL



—the label that is your guarantee of maximum performance and satisfaction. Your jobber stocks it—for refilling and in factory charged dryers.

REFRIGERATING ENGINEER

Prominent Midwest manufacturer has immediate opening for a Refrigerating Engineer, preferably with experience on domestic absorption units, to work on post-war research.

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Air Conditioning & Refrigeration News

Canadian Refrigeration Journal

The only publication servicing the industry in Canada

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For: TRUCKS, LOCKERS, COOLERS, COUNTERS
AND CABINET CONVERSIONS, ETC.

KOLD-HOLD PLATES

KOLD-HOLD MFG. CO.
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GENUINE MAYFLOWER

CONDENSING UNITS AND PARTS

Jobber Inquiries Invited

A complete line backed by nearly a quarter century of user confidence. Write for prices.



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PURQ ELECTRIC WATER COOLERS

BRANCHES IN PRINCIPAL CITIES
MAIN OFFICE
440 LAFAYETTE ST.
New York 3, N. Y.

PURQ FILTER CORP.
OF AMERICA

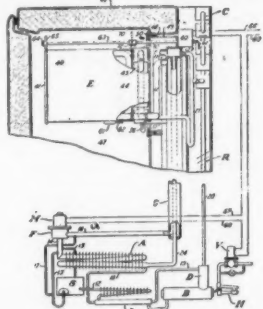
DRINKING WATER
SPECIALISTS FOR 40 YEARS.



PATENTS

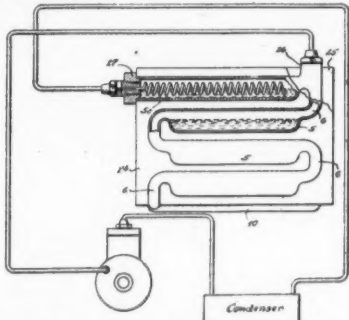
Weeks of Mar. 6 & 13

2,371,214. REFRIGERATION. Justice H. Beach, Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio. Application Oct. 3, 1940, Serial No. 359,482. 12 Claims. (Cl. 62-5.)



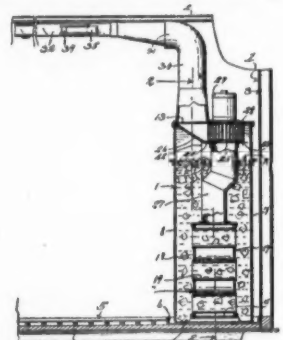
2. Refrigerating apparatus comprising a refrigerating chamber, a cooling unit in said chamber comprising a refrigerating compartment and an air cooling coil, control means for setting the effective temperature carried by said cooling unit, and means operated by said first mentioned means for controlling the circulation of air across said cooling unit to maintain optimum refrigerating conditions in said chamber.

2,371,215. REFRIGERATING APPARATUS. John H. Benson, Salem, Ohio, assignor to Mullins Mfg. Corp., Salem, Ohio, a corporation of New York. Application Feb. 3, 1937, Serial No. 123,892. 23 Claims. (Cl. 62-126.)



22. An evaporator for refrigerating systems, comprising a wall or walls for effecting transfer of heat units, and a continuous unobstructed gas conduit arranged for the transfer of heat units to said wall or walls, portions of said conduit being enlarged to form a plurality of spaced shallow liquid reservoirs with gas chambers thereabove, and portions of said conduit connecting said adjacent reservoirs being formed to materially increase the velocity of refrigerant gases in passing from one reservoir to the next during normal operation of the system.

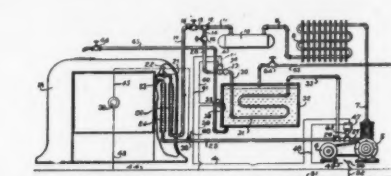
2,371,129. AIR REFRIGERATING APPARATUS. Garland W. Crouch, Oklahoma City, Okla. Application Oct. 4, 1943, Serial No. 504,940. 2 Claims. (Cl. 62-131.)



1. An air refrigerating apparatus, comprising a fluid-tight housing having a top wall provided with an air inlet opening and an outlet, a heat transfer unit within the housing including a closed casing, said casing having a top wall provided with remotely spaced air inlet and air outlet openings, a pipe connecting the casing air inlet opening with said housing inlet opening, an air conduit connecting the casing outlet opening with the housing outlet opening, an air circulator within said conduit for drawing air through the casing and discharging it through the housing outlet, a relatively long air distributing conduit connected at one end with said housing outlet for the discharge of refrigerated air at a remote point from the housing and provided with a plurality of side wall air outlet openings, and a shiftable gate movable relative to each of said openings for controlling the escape of air therethrough.

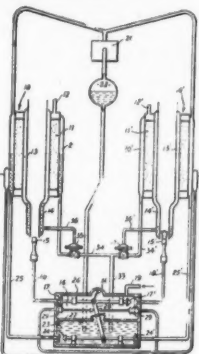
2,370,888. COMBINATION DOUGH MIXER AND WATER-COOLING DEVICE. Merline A. Stielber, Kansas City, Mo. Application Nov. 9, 1942, Serial No. 465,006. 13 Claims. (Cl. 62-1.)

1. In refrigerating apparatus, a mixer, a cooling element therefore, a water cooling device, a cooling element for said water cooling device, a compressor with which both said cooling elements are connected,



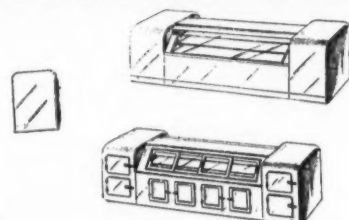
and connected to the discharge side of said compressor and said cooling elements, means controlling the operation of said compressor, comprising means responsive to the temperature of said mixer and means responsive to the temperature of said water cooling device, said temperature responsive means cooperating to only halt operation of said compressor upon both said mixer and said water cooling device having been cooled each to a temperature predetermined for it, and means for interrupting flow of refrigerant to said compressor from said mixer cooling element controlled by the means responsive to the temperature of said mixer.

2,370,643. REFRIGERATION APPARATUS OF THE INTERMITTENT ABSORPTION OR ADSORPTION TYPE. Nils Erland af Kleen, Stockholm, Sweden, assignor to Kleen Refrigerator, Inc., Hoboken, N. J., a corporation of Delaware. Application May 11, 1942, Serial No. 442,416. 14 Claims. (Cl. 62-5.)



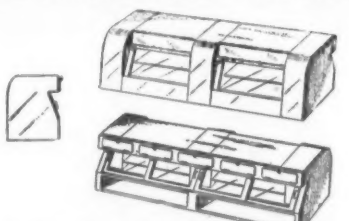
1. In refrigerating apparatus of the intermittent absorption type including two units operating in phase relation to each other and each having a boiler-absorber, the combination including a separate heat transfer system for each of said boiler-absorbers, a heat source for each of said heat transfer systems, thermostat means responsive to the temperature in each of said boiler-absorbers for rendering the source of heat to one of said heat transfer systems ineffective and simultaneously rendering the source of heat to the other heat transfer system effective, and vice versa, whereby each of said boiler-absorbers is heated intermittently and in phase relation to each other, and means responsive to the pressure in each of said heat transfer systems and operative at a predetermined pressure attained upon failure of said thermostat means to operate, for preventing overheating of the boiler-absorber being heated.

140,542. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Nov. 29, 1944, Serial No. 116,813. Term of patent 14 years. (Cl. D80-11.)



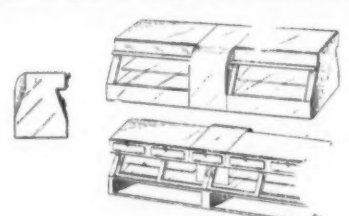
The ornamental design for a refrigerated display and storage cabinet, substantially as shown.

140,541. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Dec. 9, 1944, Serial No. 116,811. Term of patent 14 years. (Cl. D80-11.)



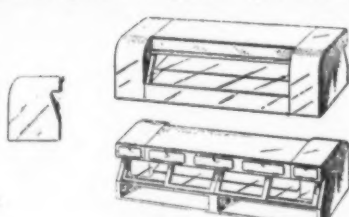
The ornamental design for a refrigerated display and storage cabinet, substantially as shown.

140,540. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Dec. 9, 1944, Serial No. 116,810. Term of patent 14 years. (Cl. D80-11.)



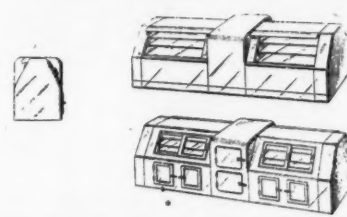
The ornamental design for a refrigerated display and storage cabinet, substantially as shown.

140,539. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Dec. 9, 1944, Serial No. 116,809. Term of patent 14 years. (Cl. D80-11.)



The ornamental design for a refrigerated display and storage cabinet, substantially as shown.

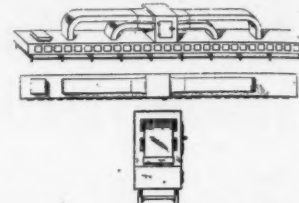
140,538. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Nov. 29, 1944, Serial No. 116,815. Term of patent 14 years. (Cl. D80-11.)



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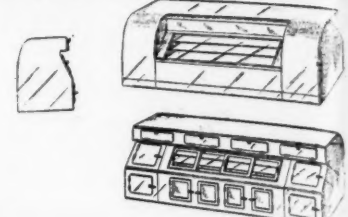
140,537. DESIGN FOR A REFRIGERATED CANDY CABINET. Arthur Schupp, New York, N. Y. Application Nov. 29, 1944, Serial No. 116,816. Term of patent 14 years. (Cl. D80-11.)

The ornamental design for a refrigerated candy cabinet, substantially as shown.



ated candy cabinet, substantially as shown.

140,538. DESIGN FOR A REFRIGERATED DISPLAY AND STORAGE CABINET. Arthur Schupp, New York, N. Y. Application Nov. 30, 1944, Serial No. 116,820. Term of patent 14 years. (Cl. D80-11.)



The ornamental design for a refrigerated display and storage cabinet, substantially as shown.

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MANUFACTURER'S REPRESENTATIVE. Chicago or Midwest territory. Recently honorably discharged from military service. Seeks connection with reliable manufacturer. Twenty years executive sales experience commercial refrigeration, heating, and ventilating. Highest references and financial responsibility. Will consider position, franchise, or agency. Box 1703, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER, service or installation man, American citizen, speaks French and Spanish, 20 years experience domestic, commercial, and industrial refrigeration. Broad knowledge of foreign markets. First class references. Wishes position in Cuba, Central or South America; other countries would be considered. Reply Box 5092, Miami, Fla.

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REQUIRE QUANTITY of new, used, or as is beer faucets. Prefer Economy, Central Brass, or any other popular make. S. J. O'BRIEN SALES CORP., 124 West 124th St., New York 27, N. Y.

WANTED: Foam control beer faucets. Write ALLIED REFRIGERATION ENGINEERING CO., 1635 E. 55th St., Cleveland, Ohio.

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SAN DIEGO, California. Wright Refrigeration Service requires first class service men at \$1.25 per hour with time and half over 40 hours per week. Steady work, lots of overtime, and the best climate in America. WRIGHT REFRIGERATION SERVICE, 1337 India St., San Diego, Calif.

APPLICATION ENGINEER: Wanted by Midwest manufacturers of heat transfer equipment. Must be familiar with technical and practical applications of refrigeration and air conditioning products. This position essential to War Effort and permanent future in postwar. Write advising full qualifications, experience, and salary expected. Box 1694, Air Conditioning & Refrigeration News.

WANTED: Experienced refrigeration man (located in New Jersey or New York) as Service Supervisor and Dispatcher. This is a permanent position with bright prospects for the right man. Must have thorough knowledge of commercial refrigeration and executive ability. Box 1696, Air Conditioning & Refrigeration News.

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REFRIGERATION ENGINEER having qualifications for research, development, designing, and improvement of our present line, also new products for postwar. At present we manufacture soda fountains, refrigerated food and beverage equipment, etc. Established 1888. Usually good position. Unequaled opportunities. Reply THE FISCHMAN CO., 10th St. and Allegheny Ave., Philadelphia 33, Pa.

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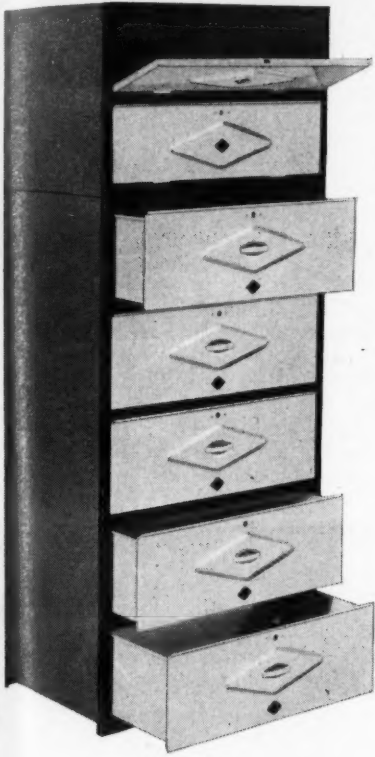
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New Type Locker



'Broadview' Locker Has Wide, Shallow Drawers

CHICAGO—Production of the new "Broadview" frozen food storage locker has just been started, announces the Safe-Way Food Locker Co. here.

This model differs from conventional lockers in that locker drawers are much wider and shallower, permitting seven lockers per tier instead of the usual five.

Overall width of a tier is 35 in., in comparison with the usual 18 or 20 in. Lockers are 24 in. long, and a tier of seven is 93 in. high. The two top lockers in the tier are provided with hinged doors, the lower

five being of drawer-type.

More storage capacity with increased accessibility and visibility of contents is claimed by Safe-Way for the new locker. Because of the additional drawers, 50% more rentals yearly are possible with this locker, the company says.

Oil Separator Added By Niagara Blower

NEW YORK CITY—A new oil separator known as the "Niagara Oilout" has been introduced by the Niagara Blower Co. for use in conjunction with Niagara's "duopass aero" condenser.

The apparatus consists of a cylindrical drum located at the outlet of the condenser coil so that the refrigerant enters the oil separator with a tangential motion. More oil is removed by this method, claims the company, because the coil has reduced the temperature of the gas sufficiently to condense oil vapor.

Expansion of the oil and refrigerant mixture from, say, a 4 in. pipe to a 14 in. drum reduces the velocity of the gas so that the oil is easily removed and held by the wall and separator plates of the trap, says the company. A sight gauge and valve for draining the oil are provided.

RCA Demonstrates New Television Receiver

NEW YORK CITY—An advance development model television receiver reproducing pictures that are claimed to be brighter, clearer, and five times larger than were obtainable on pre-war sets was demonstrated recently in Radio City by the RCA Victor Division of the Radio Corp. of America, with the cooperation of the National Broadcasting Co.

A special program of live talent and films presented for the demonstration by NBC was viewed on the receiver model, which features a new type of screen, 16 x 21½ inches, made of surface-treated plastics. Technical details of the receiver were explained by Dr. C. B. Jolliffe, vice president in charge of the RCA Laboratories. John W. Royal, NBC vice president in charge of television, discussed programming.

According to Frank M. Folsom, vice president in charge of the RCA Victor Division, television sets of the type demonstrated will not go into production until wartime restrictions on manpower and materials are removed. He said that the company expects to make large-screen receivers available within about one year after civilian production is resumed.

Console models containing projection-type television, FM, and standard broadcast receiving facilities, Mr. Folsom added, will cost approximately \$395. RCA Victor will also have several models equipped with direct viewing picture tubes and at least one table model priced at about \$150.

The large-screen television receiver, Dr. Jolliffe said, was made possible by four pre-war technical developments by RCA scientists. These include an improved high voltage projection tube; a unique optical system of high efficiency; a new type of plastic viewing screen, and an automatic frequency control circuit.

The optical system, Dr. Jolliffe said, consists of a bowl-shaped mirror and molded plastic lens of special design which delivers to the back of the viewing screen about six times as much light as could be obtained with a conventional F:2 movie projection lens.

In the model demonstrated the cathode ray receiving tube is mounted face downward in the lower part of the cabinet with the bowl-shaped mirror below it and facing upward. Light from the face of the tube is reflected upward from the mirror through the plastic lens to a flat inclined mirror near the top of the cabinet, from which it is thrown on the back of the viewing screen.

The vertical mounting makes it possible to install the entire receiver and optical system in a cabinet not much larger than a standard radio console.

The second RCA development which contributes to the brightness, clarity, and high definition of the large screen picture is a special high-voltage type of cathode ray tube. This tube produces a much brighter original image on its face than could

be obtained with the lower voltages used for the purpose before the war, claims RCA.

The third advance which enhances the quality of the picture is an automatic frequency control developed by RCA Victor engineers, which eliminates picture distortion caused by "noise" interference, it was said.

Augmenting these improvements, a fourth advance introduced in the demonstration is RCA Victor's new translucent plastic viewing screen. Special features incorporated in the design of the screen provide even distribution of light over the image area, and proper distribution of transmitted light within the normal viewing angle.

Catalog Describes Line Of Cash-Acme Valves

DECATUR, Ill.—A new 28-page catalog describing its complete line of Cash-Acme automatic valves and pressure controls for use with water, air, steam, and oil, has just been issued by the A. W. Cash Valve Mfg. Co. here, announces Dean E. Maden, secretary.

Redmond Co. Offers Motor Specifications

OWOSSO, Mich.—A new four-page folder containing specifications on the standard type "L" light weight, shaded pole, a.c. "Micro-motor" in sizes from ½ to 1 hp. has just been issued by A. G. Redmond Co. here.

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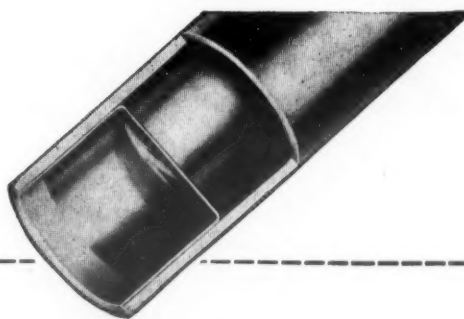
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*Patent Applied For

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WPB Chief Describes Policies Designed To Clear Path For Some Reconversion

(Concluded from Page 1, Column 5) consistent with the needs of the war in the Pacific. This includes questions of retooling, plant clearance and arrangement, procurement of materials, and adjustment of programs to permit the obtaining of necessary components.

Machine tools, Mr. Krug and others of his staff declared, are a major problem, and one that will perhaps require the most thought and study. Considerable optimism was expressed on the matter of critical materials, and it is Mr. Krug's belief now that very soon after VE Day that manufacturers can place orders for such materials without allotment symbols.

Schedule of Cutbacks

According to Mr. Krug, most recent estimate of the cutback from the present level of war production after VE Day will be in about these percentages:

First quarter	12%
Second quarter	20%
Third quarter	30%
Fourth quarter	35%

He ventured the opinion that cutbacks anytime after the first quarter might be considerably higher, depending on how the war in the Pacific was going.

It is not in the thinking of the present planning to have manufacturers start off their production of civilian goods again on the very same day, in the manner of the start of a race, it was explained.

Rather, WPB will strive in its planning and adjustment of contracts to give manufacturers "equality of opportunity" by having the same rulings apply to all manufacturers.

However, if one manufacturer makes better use of his time and facilities than another, and can get into production of civilian items sooner, it is not now contemplated that the government will make any rules holding him back until the others are ready to go.

Mr. Krug did state that authorization for the necessary retooling, plant rearrangements, and facilities should be possible at the time of victory in Europe, and certain essential long-term items may be underway before that time.

The WPB chief also announced the establishment in its regional office in Detroit a staff of experts to work in Detroit with the automobile industry in developing the various preparatory steps which must be completed before civilian production can be authorized.

Who Gets Preference

Preference in the "gradual" reconversion timetable will go to such consumer durable goods as refrigerators, washing machines, automobiles, and radios, declared Mr. Krug. However, raw materials will first be made available for new railroad and public utility equipment, oil drilling tools, and farm machinery.

It is the hope of WPB officials that after VE Day there will be cutbacks in such components as motors, compressors, and the like as to permit the start of the manufacture of civilian products in the consumer durable goods category.

As soon as possible after VE Day, Mr. Krug explained, the Controlled Materials Plan will be "open-ended," which means that steel, copper, and aluminum could be ordered without recourse to specific allotments, thus permitting manufacturers to place orders promptly for the materials and components needed.

Policies for reconversion, including

policies on distribution, will be formulated by the WPB "Committee on Period One." This committee will tie in all government agencies on reconversion planning and procedure.

12-Point Program

The following is the 12-point preliminary program for reconversion as outlined by Mr. Krug:

1. Cutbacks will be handled, wherever practicable, so as to distribute the production load equitably throughout the nation.
2. Positive assistance will be given

through controlled material allotments and preference ratings for new or additional production of a very limited number of civilian products now in such short supply as to endanger the war-supporting economy.

3. Measures will be taken to facilitate rapid reconversion through positive assistance for tools, equipment, construction, and long lead-time materials and components needed to begin large-scale production promptly when further cutbacks occur.

4. Most of the so-called "rating floors" which now prohibit the acceptance or delivery of materials, components, and equipment on unrated orders will be suspended.

5. The Controlled Materials Plan will be broadened by permitting the delivery and acceptance of controlled materials (steel, copper, or alumi-

num) without allotments, subject to preference at mills and warehouses for all orders covered by allotments.

To Rescind Orders

6. As quickly as practicable a substantial number of L and M orders that now prohibit or restrict production and distribution will be relaxed or suspended. The WPB will continue to limit the production of some goods requiring materials still in scarce supply.

7. Most of the conservation orders specifying the kind of materials to be used in making certain products will be revoked.

8. Some relaxation in the construction order L-41 to permit the most urgently needed civilian construction will be permitted.

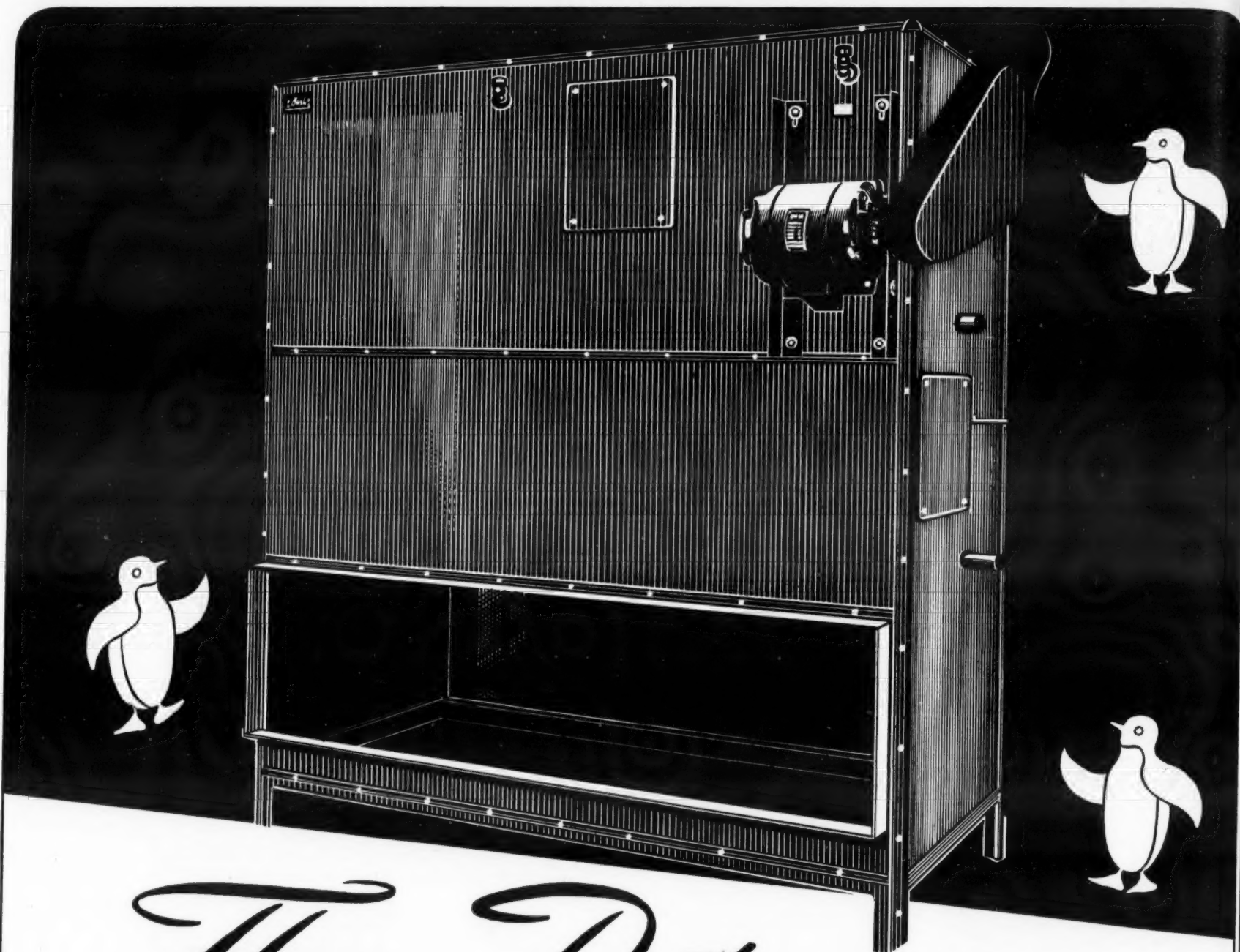
9. Steps will be taken to insure

that, where production is authorized on a restrictive basis, small business and new producers are given full opportunity to participate.

10. A simplified priority system to replace CMP and other priorities will be introduced at the earliest possible date.

11. Procedure will be instituted for authorizing construction or production in certain local areas, as exceptions to nationwide limitation orders to permit utilization of labor and resources that cannot practically be used for war production or civilian manufacture not under limitation orders.

12. The WPB will continue specialized controls over all materials continuing in tight supply such as tin, crude rubber, textiles, lumber, and certain chemicals, to assure meeting all essential war and civilian needs.



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